Gas Journal

LIGHT - HEAT - POWER - BY-PRODUCTS

Vol. 246. 97th Year. LONDON, OCTOBER 3, 1945. No. 4298. Price 1/-

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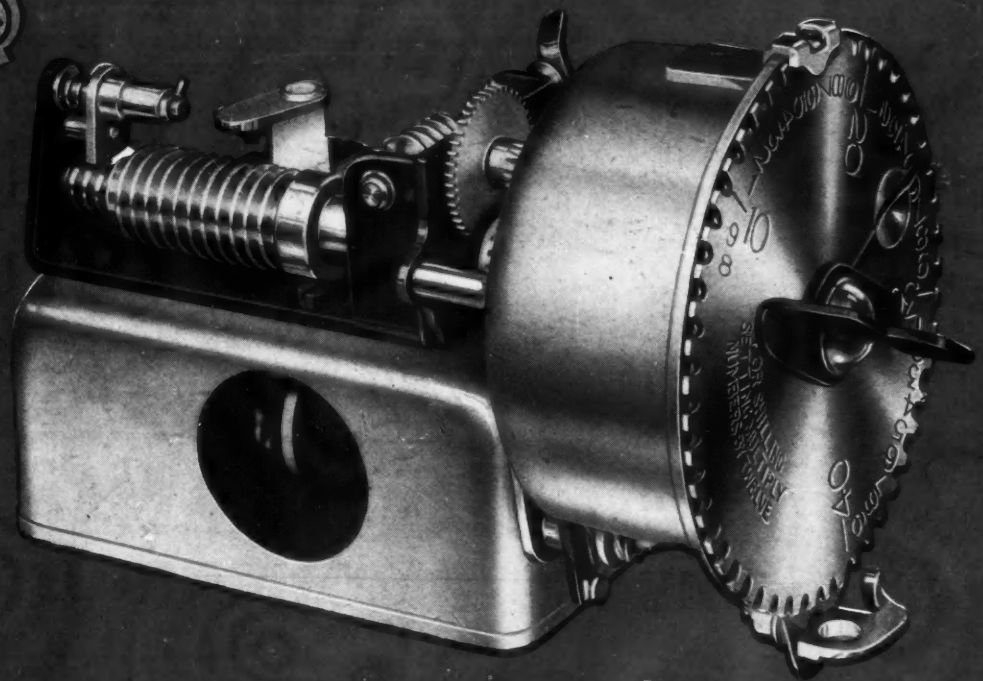

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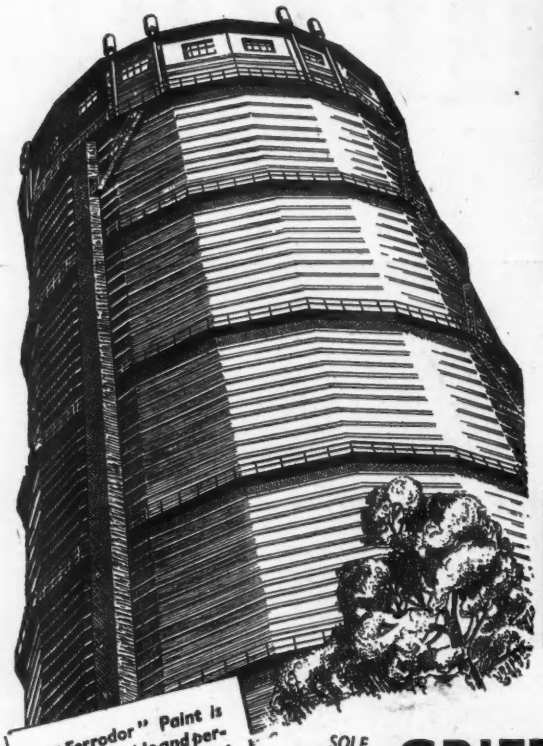

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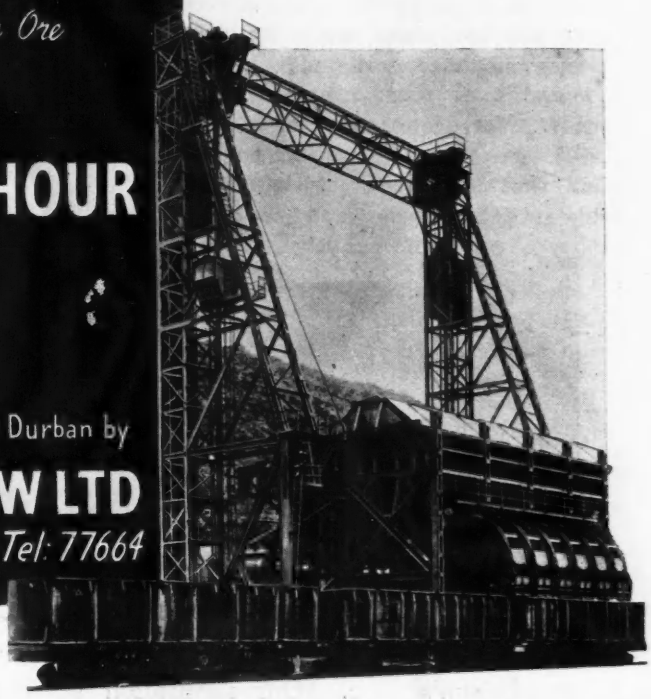

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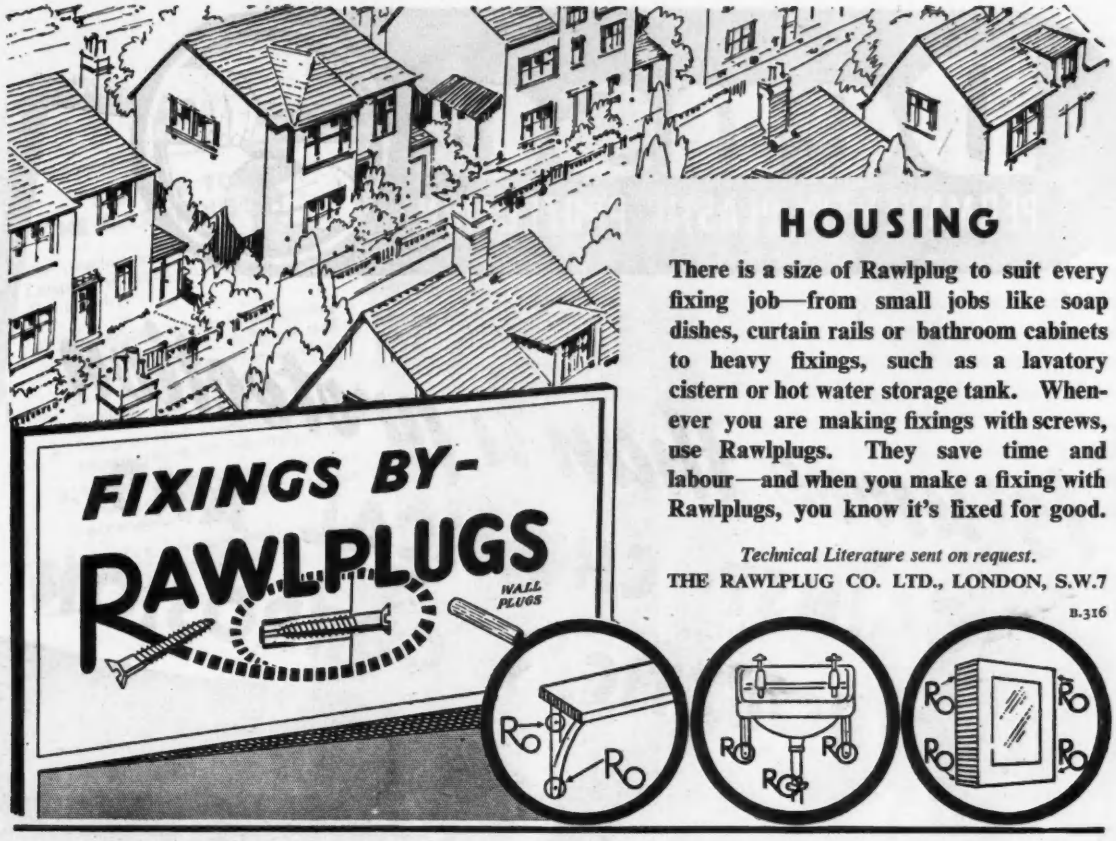

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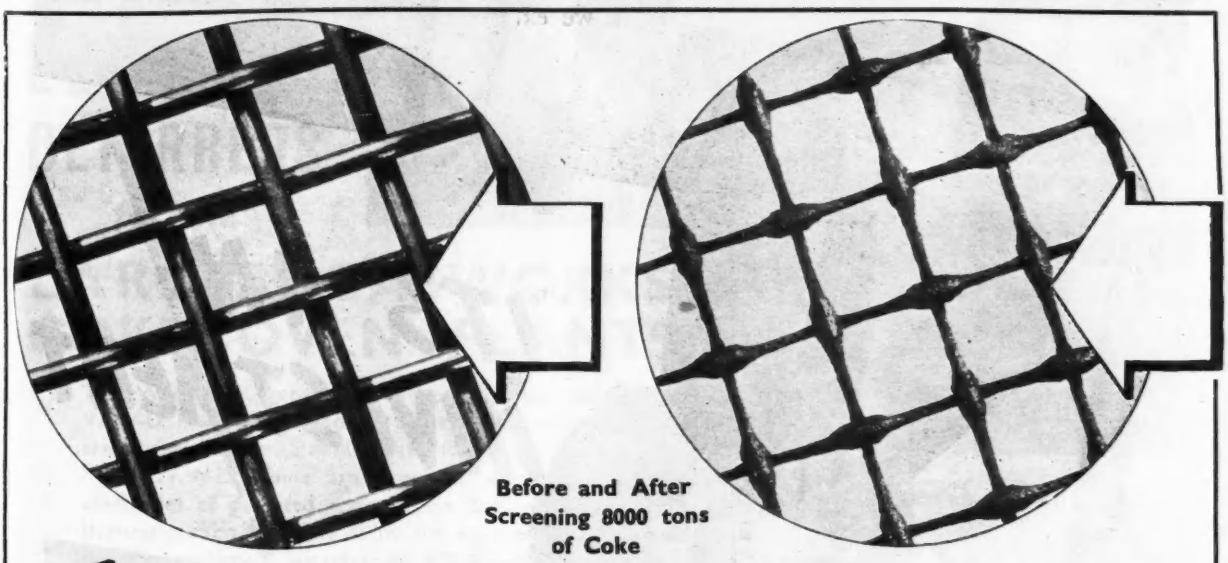

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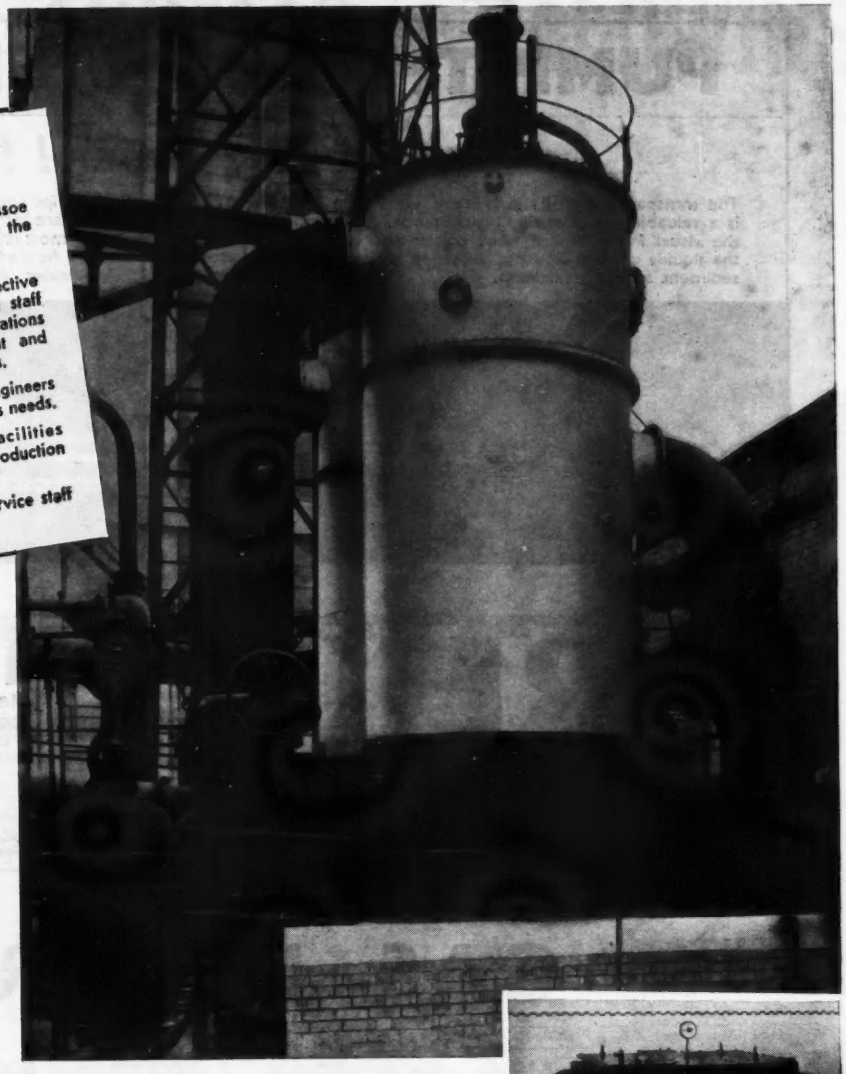

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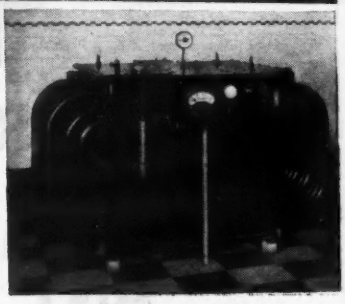

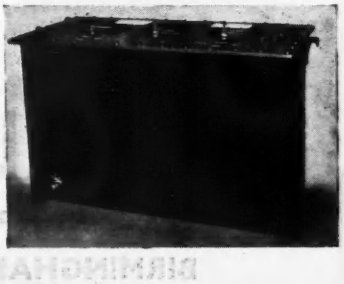

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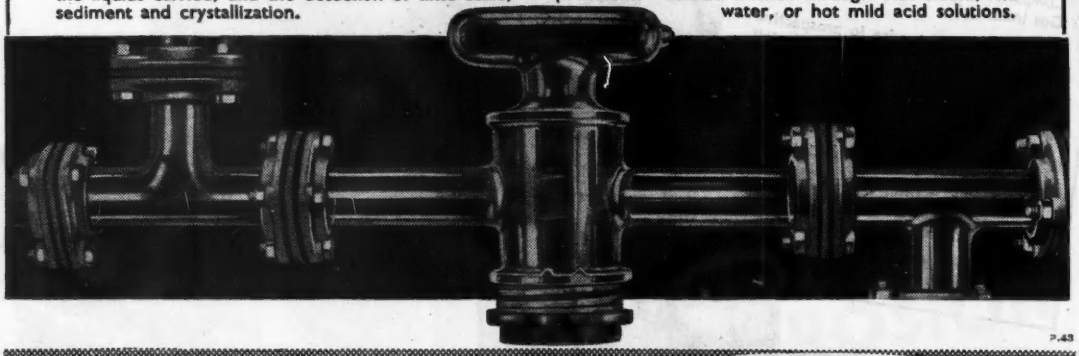

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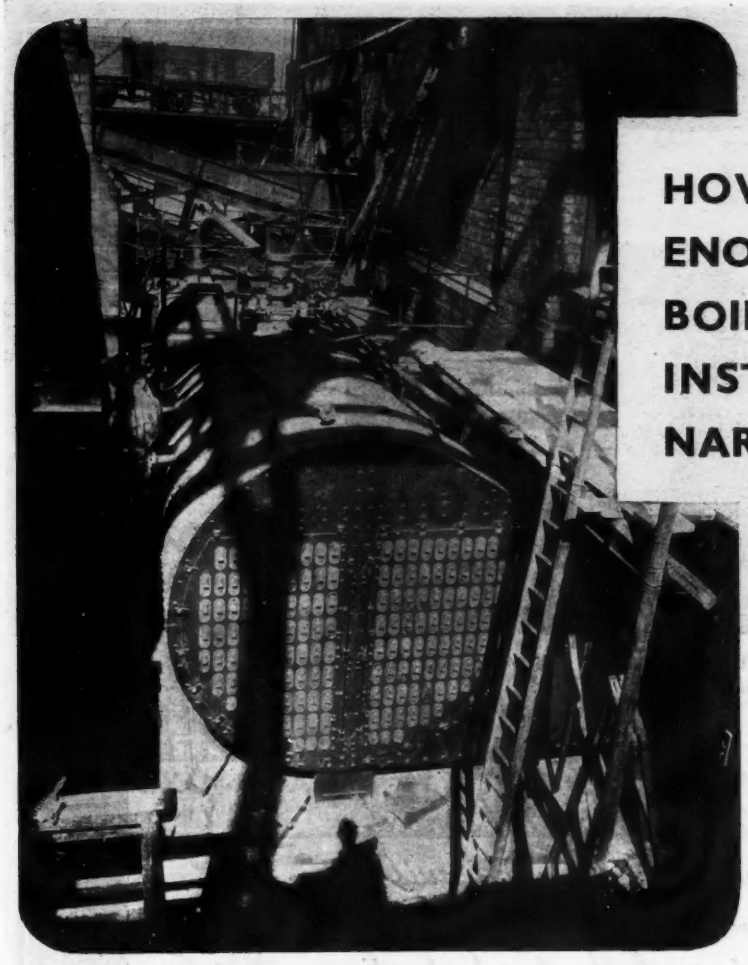

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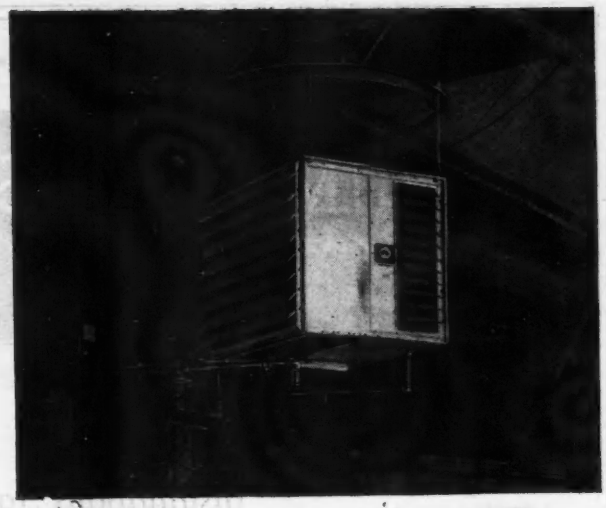

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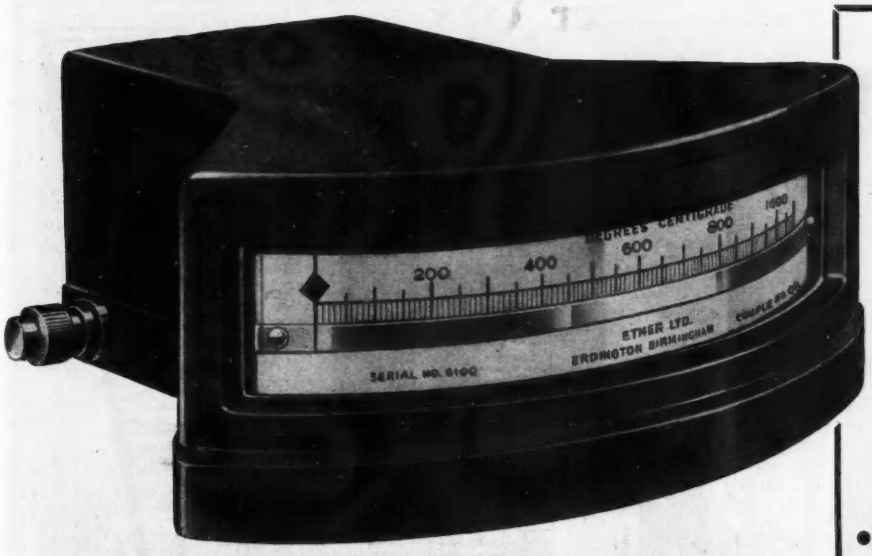

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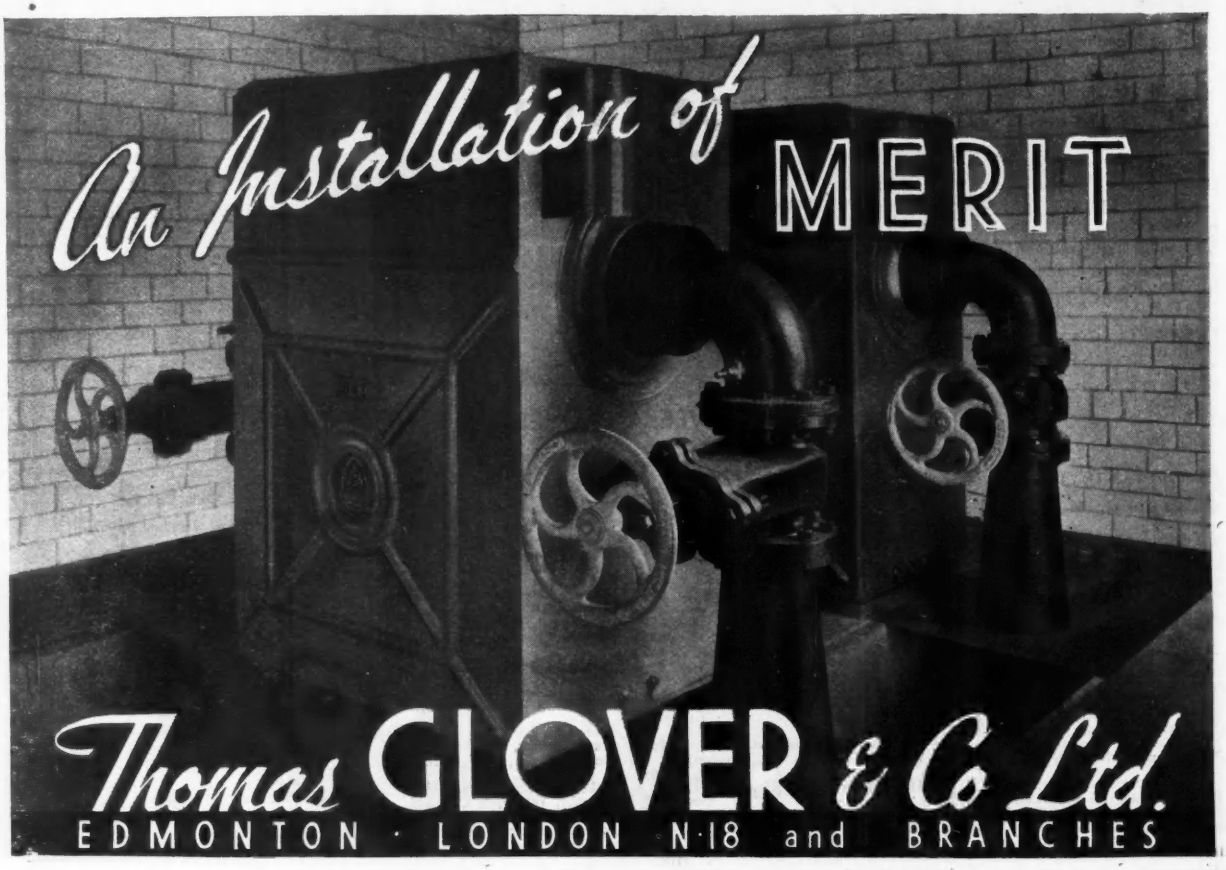

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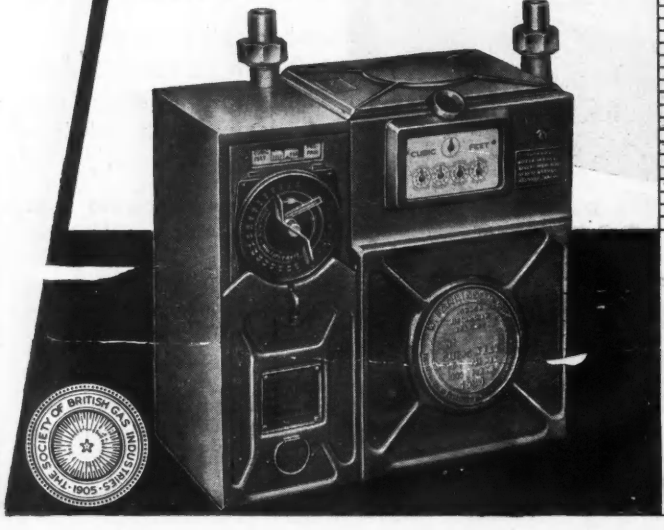

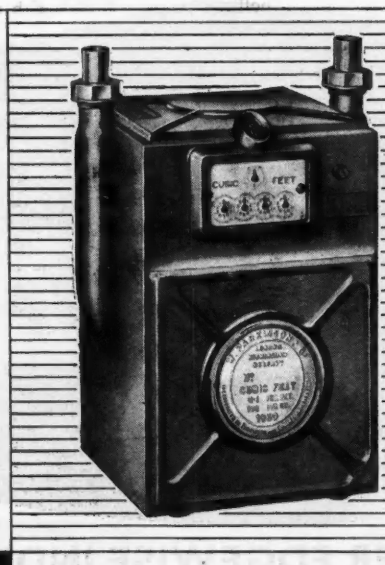

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GAS JOURNAL, OCT. 3, 1945

VOL. 246 97th YEAR No. 4298

EDITORIAL NOTES

PUBLIC LIGHTING

WE published in our issue last week a report of what proved to be a very successful three-day conference in Glasgow of the Association of Public Lighting Engineers, attended by about 1,000 delegates from all parts of the British Isles; we also gave an account of an exhibition of lighting appliances and fittings held in conjunction with the conference. Lighting engineers have been waiting through six years of darkness for the opportunity to resume their work; the lights are now partially "up again," emphasis being on the word "partially." As in every other field of fuel utilization there are two major difficulties —shortage of coal and shortage of labour. Resumption of street lighting to peacetime standards would involve a consumption of something like 1,000,000 tons of coal a year—not a large percentage of total coal consumption; but every little counts large, and we have sympathy with the Ministry of Fuel's attitude that it would be against public interest if street lighting was the sole form of fuel consumption in which there was immediately a full return to pre-war standards. A sense of equity must, of course, be coupled to a sense of proportion. Sheffield, for example, as was pointed out at the conference, has a domestic coal consumption of the order of 600,000 tons per annum, while the amount of coal used in its transformed forms for street lighting is assessed at 21,000 tons. The Ministry of Fuel has urged all local authorities to extinguish public lighting at midnight, and the point was put forward at the conference that the saving to be effected in Sheffield by compliance with this request would amount only to something like 1% or 1½% of the domestic coal consumption. We suppose that Sheffield's figures have a broad general application; the dominant fact is the need to save coal, and it is also a fact that the Ministry, realizing the impracticability of any rigid directions, has simply sought the co-operation of local authorities, leaving these authorities to seek a solution in the light of individual circumstances, which circumstances obviously vary.

On another matter, considerable discussion took place at the conference on proposals by the Council of the Association of Public Lighting Engineers to alter its constitution. The overriding aim is to raise the whole status, to change the name "Association" to "Institution," which proposal is now before the Board of Trade, and to set out definite qualifications for admission to various classes of membership. That these recommendations are not misplaced is reflected by the high standard of the technical contributions presented at the meeting, which emphasized the scientific nature of modern street lighting practice and showed that the solution of illumination problems calls for the services of those scientifically and technically trained.

THE PAINT INDUSTRY

AS a fairly considerable consumer of paint, the Gas Industry has more than a casual interest in the structure and functions of the trade organizations in the paint industry. Three years ago we watched with interest the deliverance of more than 300 of the smaller paint manufacturers and suppliers of raw materials from the threat of losing, at any rate temporarily, their identity under a scheme of concentration of paint manufacture which was put forward by the Government as a means of meeting the labour problems of those critical days. Out of that fight there came the formation of the Paint Manufacturers and Allied Trades Association, whose objects are broadly to protect and further the general interests of the paint industry and its relations with consumers. The much older Paint Federation—to give it its full name, the National Federation of Associated Paint, Colour, and Varnish Manufacturers of the United Kingdom—was and still is a well-established body in the industry, and numbers among its members many of the smaller as well as the larger manufacturing firms.

Last Thursday we learnt from Amberley House, Norfolk Street, London, that another organization had come into being —the Society of British Paint Manufacturers, Ltd., "representing an important section of the paint industry, with large responsibilities and wide experience." Mr. C. G. Heywood, President of the acting Council of the new Society, tells us that its principal object is to raise the status of the industry, both nationally and internationally, and to provide an organization that can deal adequately with the many and growing problems facing the industry in its transfer from war to peace and its development under future conditions. A summary of aims underlines the announcement that the Society will function in such a manner as to enhance the reputation of the industry; that it is forming consumer divisions serving the interests of consumers; that it aims to resist monopolistic tendencies of restraint on material, to resist at all times interference with free enterprise, and to serve the national interest by co-operation with Government Departments and other organizations. It would probably be just as incorrect to say that the new Society represents the "big" manufacturers as it would be to say that the Association born in 1942 is exclusively composed of the smaller firms. It was essentially a small manufacturers' problem that brought the Association into being; to-day's and to-morrow's problems are the concern of the large as well as the small firms, hence the formation of the Society. There are some who think it might have been better to have a single organization, but the majority have decided otherwise, though there is in fact a small committee representing all three organizations—the Federation, the Association, and the Society—which deals with matters that are of common concern to the industry as a whole.

AN IMPENDING CENTENARY

LIKE many English institutions, the Imperial College of Science and Technology came into being not by an act of new creation but by the fusion and development of earlier foundations. It is a federation of three constituent colleges—the Royal College of Science, the Royal School of Mines, and the City and Guilds College. We mention this matter here, not in view of the close contact with and interest of the Gas Industry in the work of the City and Guilds College, with its Department of Chemical Technology, which includes fuel technology—it will be recalled that Professor Bone was in charge from its inauguration in 1912 to the year 1936—but because the Imperial College is shortly to celebrate its centenary. It was actually a public meeting on July 29, 1845, that did so much for the promotion of British chemistry, the outcome of which meeting was the institution of the Royal College of Science. The Royal School of Mines followed in 1851, and 1878 saw the creation of the City and Guilds of London Institute, the College being opened in 1884. All three were federated by Royal Charter in 1907.

The present position of the Imperial College is evidence that its work of the past is recognized and that widespread interest is taken in its present aims; in particular in its intention to develop a corporate life more comparable with that enjoyed

in the older universities, and to increase its residential accommodation. In both directions the College hopes to make some start this year, believing that in the long view nothing is more important to the nation's industries than to supplement intensive technological training with a background of wider interests. The need is urgent of new laboratories, new equipment, and additional staff and income with which to extend the provision of the most advanced training and research.

The first President of the College was the Prince Consort, who took his duties seriously; indeed, success came largely by his efforts. The centenary celebration is planned for October 25, in the Royal Albert Hall, when the King will attend as Visitor, accompanied by the Queen.

Benzole Recovery

The Benzole Recovery Plant General Direction, 1945, came into force on Oct. 1 and revokes the Benzole Recovery Plant General Direction, 1942, which required gas undertakings possessing plant for the recovery of benzole to cause the gas produced by the carbonization of coal to be treated by passing through such plant. The Benzole Recovery Plant General Direction, 1942, and the parallel Order relating to coke producers were introduced primarily in order to secure the full production of toluene. Notwithstanding the toluene requirements for essential purposes are now reduced, the Ministry express the hope that gas undertakings will continue to produce on a voluntary basis the maximum possible quantities of benzole compatible with the maintenance of gas supply. The British Gas Council have this matter in hand and intend to communicate with their members in regard to the developments in connexion therewith. The Ministry of Fuel and Power state that the willing co-operation of gas undertakings in the operation of the Benzole Recovery Plant General Direction has been of inestimable value to the Ministry.

Personal

After 34 years' service with the Darlington Gas Department, 25 years as Engineer and Manager, Mr. A. E. RUFFHEAD is being succeeded by Mr. F. WILSON, but his services will be retained in an advisory capacity until the end of the year. Mr. Ruffhead was educated at Tiffins School, Kingston, and at King's College, London, and was elected Associate of the College on the successful completion of his studies in civil engineering, and entered, in 1899, the drawing office of T. and C. Hawksley, Gas and Water Consulting Engineers. Six years later he became Resident Engineer during the construction of three pumping stations for the Sunderland and South Shields Water Company, after which he was employed as Engineer to the Barnstaple Water Company; later, Resident Engineer on the building of a complete gas-works for the Sunderland Gas Company, under the late Mr. C. Dru Drury; and then, Resident Engineer and Works Manager at the Burton-on-Trent Gas Department, before going to Darlington in 1911. Mr. Ruffhead was President of the North of England Gas Managers' Association in 1930–31, and is Vice-Chairman of the Special Purposes Section. He has, for 12 years, represented the North on the National Joint Industrial Council for the Gas Industry, and is a member of the British Gas Council, and of the Central Committee of the Federation of Gas Employers. For many years he was a member of the Executive Committee of the British Commercial Gas Association.

* * *

Mr. W. L. ROBERTSHAW, who, as briefly announced in the "JOURNAL" of Sept. 19, has just retired from the post of Engineer of the Sunderland Gas Company, has completed half a century of engineering. After early training with R. & J. Dempster, Ltd., he joined the Shrewsbury Gas Company as Chief Draughtsman and Clerk of Works. In 1906 he went to the Para Gas Company, North Brazil, as Assistant Engineer and Deputy Manager, and returned two years later to spend a further three years with R. & J. Dempster, Ltd., as Resident Engineer on several large contracts. In 1912 he went to Sunderland as Chief Draughtsman and Clerk of Works under the late Mr. C. Dru Drury, became Works Manager at Ayres Quay in 1914, and was appointed Engineer on the retirement of Mr. Dru Drury in 1937, with headquarters at the Hendon works. Under his direction extensive reconstruction schemes were carried out at both works, including the installation of a new holder, purifiers, condensers, and waste heat boiler, to meet the increasing demand for gas, which has risen by 40% since 1937.

* * *

Mr. A. D. HILL, who has been Engineer and Manager of the Swadlincote Gas Department for seven years, has been appointed Engineer and Manager of the Banbury Gaslight and Coke Company. On his departure from Swadlincote the members of the National Association of Local Government Officers and the employees of the Gas Department made presentations.

The Directors have elected to the Board of the Bournemouth Gas and Water Company the Rt. Hon. SIR GEOFFREY SHAKESPEARE, Bart.

* * *

Mr. F. B. KERR, of Johnstone, has been appointed Assistant Engineer and Manager of the Elgin Gas Department.

* * *

The Lord President of the Council has appointed Professor R. P. LINSTEAD, M.A., D.Sc., F.R.S., to be Director of the Chemical Research Laboratory in the Department of Scientific and Industrial Research. Professor Linstead will take up this appointment on Oct. 1. Professor Linstead was formerly Firth Professor of Chemistry in the University of Sheffield and in 1939 was elected to the Chair of Chemistry n Harvard University, U.S.A. During the war he returned to Great Britain and has rendered valuable service in relation to the application of science to war problems. In 1942 he became Deputy Director of Scientific Research in the Ministry of Supply. During the past year he was British Chairman of the Combined Intelligence Objectives Sub-Committee who were responsible for organizing the investigation of German military scientific developments.

* * *

Mr. J. CASTLE, Engineer, Manager, and Secretary of the Leyland Gas Company, who, as announced in the "JOURNAL" of Sept. 19, is taking over the duties of Engineer and Manager of the Ormskirk District Gas Company, asks us to make it clear that he is retaining his position at Leyland in addition to this further appointment.

* * *

Mr. H. E. BANKS, Second Assistant Engineer of the Wigan Gas Department, has been appointed Assistant Engineer and Manager of the Beverley (Yorks) Gas Department.

* * *

Mr. J. F. WAIGHT, of the South Metropolitan Gas Company, has been appointed Assistant Superintendent, Industrial Heating Section, of the Birmingham Gas Department as from Dec. 1 next.

* * *

Mr. ROBERT FOOT, Chairman of the Mining Association, is retaining his position in order to take his full part in implementing the Association's undertaking of co-operation with the Government.

* * *

Mr. P. CRAWFORD SUGG, Director of William Sugg & Co., Ltd., has returned after some years' service with the Royal Air Force, and is now controlling the sales and technical departments of the Company.

* * *

Mr. JACK PRITCHARD has been appointed Sales Development Manager to Bratt Colbran, Ltd. Mr. Pritchard, who was recently concerned with post-war domestic heating questions in the Ministry of Fuel and Power, resigned that appointment at the end of last June. In his new work he will be responsible for the development and sales of fuel-burning appliances for gas, electricity, and solid fuel. While still in the Ministry he led what the late Minister for Fuel and Power called a " working party " to America with the object of studying the American experience of heating small houses for the lower income groups of the population.

Obituary

The death occurred on Sept. 17 of Mr. WILFRED TALLENTIRE, at the age of 85. He went to Ireland as a boy from Whitehaven, and after training as a Gas Engineer he succeeded his father, who had then held the office for 15 years, as Manager of the Lurgan (C. Armagh) Gas Undertaking, in 1889. In 1916 the Lurgan Gas Light and Chemical Company was acquired by the Lurgan Urban District Council, and Mr. Tallentire remained Manager until his retirement in 1939, having been Manager for a continuous period of 50 years. He is survived by two daughters and three sons, one of whom, Mr. T. L. Tallentire, is Engineer and General Manager of the Dursley Gas Light and Coke Company.

* * *

Mr. STANLEY J. BENHAM died at Arundel on Sept. 26, after a long illness, at the age of 70. He entered Benham & Sons, Ltd., in 1892, became a Director in 1899, and Managing Director in 1901. He was Chairman at the time of his death. In 1909 he became Chairman of James Slater & Co. (Engineers), Ltd. He was responsible for the design and equipment of steam cooking plant for most of the larger British warships built between 1904 and 1918. During the second World War he was responsible for the design and equipment of the canteen kitchens for Royal Ordnance Factories and their hostels; and he was intimately connected with similar work for War Department camps all over the country. Mr. Benham had been President in 1922–23 of the Association of Heating, Ventilating, and Domestic Engineering Employers; Vice-Chairman from 1913–45 of the Cooking Manufacturers' Association; the first chairman (from 1942–44) of the Joint Council representing all sections of the cooking equipment manufacturing industry; and a member of the livery of the Fishmongers' Company.

Letter to the Editor

Free Space in Horizontals

DEAR SIR,—In view of the interest which has been taken in the published account of experiments upon the effect of free space in horizontal retorts, we rather regret now that we did not send in this Paper in greater detail.

In his letter of Sept. 10, Mr. C. A. Deas asks whether it is possible that the extra therms produced per ton of coal were obtained at the expense of throughput. This is not the explanation, since the throughput was maintained constant throughout the experiments, at 10 tons per day. This is briefly stated in paragraph 5 of the Paper (p. 259 of the "JOURNAL"). Although the time of carbonization was reduced with the lighter charges in order to achieve this constancy of throughput, the result did not adversely affect the fuel consumption. At the time of the experiments the setting was being heated by an independent supply of water gas, and in the five experiments quoted the consumptions of water gas were respectively 44.6, 44.5, 44.3, 44.7, and 45.0 therms per ton of coal. The differences are, therefore, negligible.

The increases in thermal yield are attributable in part to slightly greater devolatilization of the coke. The residual volatile matter in the dry, ash-free coke in the five experiments, as determined by loss of weight in a current of nitrogen, was 1.1, 1.2, 1.1, 0.8, and 0.9% respectively.

We entirely agree with Mr. Deas that the removal of the last two or three gaseous therms from coke is undesirable in a two-fuel industry. It seems in fact more than ever important that the coke should have such reactivity as would make it both flexible and suitable for a wide variety of purposes. We would remind Mr. Deas of the interesting discussion on this question which followed the presentation in June to the Institution of Gas Engineers of the Paper on Fuel for the Transport Gas Producer.

1, *Grosvenor Place*,
London, W.C. 1.
Sept. 29, 1945.

Yours faithfully,
J. G. KING,
D. MACDOUGALL.
H. BARDGETT.

Diary

Oct. 5.—North of England Gas Managers' Association: Autumn meeting, 30, Grainger Street, Newcastle-on-Tyne, 2.30 p.m. Address by A. E. Sylvester, Chairman of the British Gas Council.

Oct. 6.—Yorkshire Junior Gas Association: Annual Meeting, Great Northern Hotel, Leeds. Address by C. S. Shapley.

Oct. 8.—Women's Gas Council, Finance and Emergency Committee, 12.45 p.m., Gas Industry House.

Oct. 9.—British Gas Council: Gas Industry House, 2.15 p.m.

Oct. 9.—Illuminating Engineering Society: Opening Sessional Meeting, School of Hygiene and Tropical Medicine, Keppel Street, W.C. 1. Presidential Address by H. C. Weston, 6 p.m.

Oct. 9.—Institution of Heating and Ventilating Engineers: Autumn special meeting, 6 p.m., Institution of Mechanical Engineers, Storey's Gate, S.W. 1.

Oct. 9.—National Federation of Gas Coke Associations: General Committee, 10 a.m., Gas Industry House.

Oct. 10.—Southern Association of Gas Engineers and Managers: Annual General Meeting, Grosvenor House, Park Lane, London, W. 1, 2.45 p.m. Presidential Address by W. A. Howie. Luncheon at 1 p.m. General Committee, 11.30 a.m.

Oct. 11.—Midland Junior Gas Association: Opening meeting of Session, 6.30 p.m., Birmingham Gas Department. Presidential Address by K. L. Pearce.

Oct. 12.—London and Southern District Junior Gas Association: Presidential Address of L. W. Andrew; Gas Industry House, 7 p.m.

Oct. 15.—London and Counties Coke Association: Finance Committee, 10.30 a.m.; Executive Committee, 11 a.m.; Central Committee, 12 noon; Annual Luncheon, 1 for 1.15 p.m.; Annual General Meeting, 2.45 p.m., Grosvenor House, Park Lane, W. 1.

Oct. 17.—Institute of Fuel: Royal Geographical Society. Melchett Lecture by Professor C. H. Lander, C.B.E., 6 p.m.

Oct. 19.—National Smoke Abatement Society: Conference on Improved Fuel Burning Appliances for New Houses, 10 a.m., Caxton Hall, Westminster.

Oct. 25.—Town and Country Planning Association: Lunch-time meeting, 28, King Street, Covent Garden, W.C. 2. Talk and discussion on "Town Planning and District Heating."

Oct. 29.—Eastern Counties Gas Engineers' and Managers' Association: Autumn Meeting, Grosvenor House, Park Lane, W. 1.

Nov. 27-28.—Institution of Gas Engineers: Autumn Research Meeting.

Dec. 6.—Town and Country Planning Association: Lunch-time meeting, 28, King Street, Covent Garden, W.C. 2. Talk and discussion on "Heating the Family Home."

Tar Products

A Lecture on the history and present practice of the tar distillation industry was given recently to the Junior Institution of Engineers by Mr. W. G. Adam, of the Gas Light and Coke Company. Before 1939, he pointed out, the total annual production of crude benzole in the U.K. had risen to 90 million gallons, and in the immediate post-war years may reach 100 million gallons, this latter figure being hardly likely to be exceeded unless the amount of coal carbonized exceeds the pre-war annual average of 400,000,000 tons. Of the total crude benzole recovered (gas-works and coke ovens) about 95% is recovered from the gas by scrubbing with tar oil or adsorption with active carbon.

The recovery of phenol and cresols from ammoniacal liquor by solvent extraction has of recent years been making great headway, mainly due to the effect of the Public Health (Drainage of Trade Premises) Act of 1937. Mr. Adam mentioned, though, that if the dephenolation process could be applied to the total ammoniacal liquor available it would bring about a substantial increase in the total production of phenols and cresols. At the works of the Gas Light and Coke Company all the incoming ammoniacal liquor is dephenolated in a Holley-Mott continuous counter-current washing unit, the solvent used being a fluid tar oil.

In regard to road tar, it was pointed out that many tar distillers are now running their own fleets of petrol or steam driven heat-insulated mechanical tank sprayers. These are loaded at the plant with road tar of the correct viscosity, and at a suitable temperature, and transported to any site within a 50 miles radius.

Newport (Fife) Town Council has decided to reduce the price of gas by sixpence per 1,000 cu.ft.

The Gas Supply Company, Melbourne, has issued 59,808 new £1 shares at par. Gas sales have increased by 131% since 1935, and by 57% since 1939. To meet these increases, extensions of the plants and distribution systems have been carried out and financed by bank overdraft. The new capital is for the purpose of reducing the overdraft and financing additional extensions which are necessary to provide for further growth, and for the supply of gas to housing schemes in most areas supplied by the Company.

From the Metronic Instrument Co., Ltd., we have received a leaflet describing its single column gauges, of vertical and inclined types. They may be mounted singly or in battery form, and are available for surface or flush mounting. These gauges have been used for measuring differentials where the static pressure was as much as 200 lb. The scale contraction is just over 1%, and scales are mechanically engraved on precision machines; thus the indicated readings are extremely accurate. A feature of both the vertical and inclined gauges is the liquid trap, which prevents loss of liquid in the event of excess pressure or vacuum being applied.

Representatives of more than 100 municipal authorities from all parts of Britain, manufacturers of heating appliances, and representatives of fuel producers and distributors, will meet at Caxton Hall, London, on Oct. 19, under the aegis of the National Smoke Abatement Society to consider improved heating methods for new houses. Dr. E. W. Smith will preside, the conference will be opened at 10 a.m. by Alderman C. W. Key, M.P., Parliamentary Secretary of the Ministry of Health, and the discussion will be opened by Mr. E. H. Keeling, M.P. The Society estimates that the raw coal burnt in this country immediately before the war sent into the air as much as 9,000,000 tons of pollution, including sulphur acids, 3,000,000 tons of which were in the form of acid-laden smoke and soot, thus wasting the work of a million miners for three days in each year.

The Metropolitan Gas Company of Melbourne has now revealed, in a well-illustrated booklet, the extent to which it devoted its wartime energies to the manufacture of munitions. Between the end of 1940 and December, 1944, defence work carried out by the Company for the Commonwealth Government reached a value of £1,034,256, and of this amount no less than £846,901 was performed at actual cost, *i.e.*, without any profit whatever to the Company. Before the war, by-product ammonia was largely converted to sulphate for agricultural purposes, but in 1943 and 1944 some 2,334,000 lb. were despatched for use in explosives production. Special solvents for synthetic resins used for coating aircraft and reclamation of rubber have been produced by the Company, and as the result of laboratory research ammonium thiocyanate used in the production of sulpha-drugs, sodium ferrocyanide from which camouflage paints are produced, and sodium oxalate, a constituent of aircraft flares, have been produced by the Company's laboratory staff, under the direction of the Chief Chemist, Mr. R. S. Andrews, for the first time in Australia.

Mr. Silkin, Minister of Town and Country Planning, who has been making a series of visits to local authorities in Yorkshire, in a statement expressed satisfaction with the progress which is being made in the planning of the various areas by the responsible authorities. He would, however, like to see their activities very much speeded up. Redevelopment proposals would be coming forward in great numbers in the near future, and it was of vital importance that planning authorities should have their plans ready so as to be able to deal with these applications in an orderly way. In addition to meeting the representatives of Hull, York, Leeds, Sheffield, and Bradford authorities and discussing the problems of their respective cities, the Minister met representatives of the East and West Riding joint planning committees.

Functions of the Ministry of Works

Mr. George Tomlinson, Minister of Works, speaking in Manchester on Sept. 24, defined the functions of the Ministry. "We are," he said, "to act as a sort of foster parent to the industry as a whole, concerning ourselves with its organization and efficiency. We do not share in the responsibility for housing policy. The relation of the Ministry of Works to the Health Departments is that of a Supply Department concerned with the provision of building materials and components and the supply of prefabricated houses."

The occasion was the opening of a series of demonstrations of power-driven tools, and the Minister added: "We know that, for some years to come, we shall, over the country as a whole, be short of labour, in comparison with the essential work of every kind that presses upon us. No amount of priority-fixing can create labour that is not there; the machine is the one way open to us of multiplying manpower. We must reverse the past trends of thought,which looked on machines as debasing to true craftsmanship and as inimical to steady, full employment. We must recognize that these machines open the way for new skill, new satisfaction, and new pride of work, and that their use can open up new opportunities, along with new avenues of advancement."

Public or Private Monopoly?

Mr. F. Hamlyn Dennis, who has had wide experience as an engineer in municipal and company electricity undertakings, has written an interesting book entitled *Electricity: Public or Private Monopoly* (Victor Gollancz, Ltd., 7s. 6d.), in which he declares that "the successful planning of electricity and gas and of the coal industry cannot be done unless these industries are brought wholly under public ownership; if private enterprise retains a big share in the ownership of these industries any plan for their co-ordination will restrict competition and bring about those dangers which are inherent in privately-owned monopolies." He credits private enterprise with being responsible for the early development of public electricity supply, and acknowledges that the holding companies have achieved some success in regionalization, but argues that the reorganization that is necessary if the industry is to fulfil its post-war obligations can only be successfully carried out under public ownership.

Mr. Dennis recognizes that there may be some conflicting interests as between local authority and company administration, but he quotes a Past-President of the Incorporated Municipal Electrical Association as saying that these "are irrelevant and both should be abolished in favour of a small public board or boards."

Mr. S. E. Britton, City Electrical Engineer, Chester, contributes a preface in which he says: "There is abundant evidence of successful development and administration over large areas by both public and private undertakings, and it is to be hoped that the Government which enacts the overdue legislation for reorganization will realize the practicability and advantages of the electricity supply industry being administered as one unit, or a very few, in place of the "hotchpotch" of more than 600 distribution authorities, and in so doing give greater protection to consumers and impose more compulsory obligations upon statutory supply authorities."

Commodity Control

While tendencies to relaxation of controls in the interests of reconstruction are gradually manifesting themselves, it will be a long time before they can be completely abolished, and the second edition of *Commodity Control* just published (Butterworth & Co. (Publishers) Ltd., 21s., postage extra) will therefore have a useful life as a detailed exposition of the emergency legislation imposing control on the manufacture or supply of commodities other than food, as it stood up to two months ago. Since the book was written more than 100 regulations have been revoked in whole or in part.

The first edition dealt with the law as it was in February, 1943, and the new second edition, written by Mr. J. Bray Freeman, Barrister-at-Law, explains the numerous changes since made. It affords a complete view of the wide field over which Government control of commodities has extended, and at the same time presents an explanation of the provisions by or under which that control is imposed, which, because it is divorced from the text of the provisions themselves and is expressed in ordinary language, will be of great assistance to those who wish to ascertain quickly the general scope and effect of emergency legislation in relation to any particular aspect of control. The narrative is keyed throughout by annotation to the actual text of the emergency provisions, and is supplemented by appendices, not the least important of which is a schedule, complete up to Dec. 31, 1944, of Orders and Regulations arranged alphabetically under commodities or groups of commodities affected. Complete and detailed references are given in a general index, and in every entry the essential point is clearly revealed, so that time is saved by eliminating the necessity for searching under a main heading for the required information.

Stockholders of Sheffield and District Gas Company have approved the proposal that application be made to the Ministry of Fuel and Power for a Special Order sanctioning the purchase of the Worsborough Dale and Worsborough Gas and Light and Coke Company, Ltd., for £20,000.

New Type Orifice Plate

A series of acid stone orifice plates for use with perforated lead evaporation pipes has recently been developed by H. T. Watson, Ltd., of Widnes. With these plates the holes in the lead pipe do not wear larger, due to the passage of steam, &c.

The firm's standard type consists of a circular acid stone disc in which is drilled the orifice. The acid stone plate is embedded in a Regulus metal collar burnt to the lead pipe, and the finished product is a perforated lead pipe with acid stone holes; with the device wear is negligible.

The firm also supplies orifice studs and acid stone orifice plates incorporating a non-return valve, for use when it is desired to keep liquor from running back into perforated pipes should steam be shut off, and also removable orifice plates for cases of blockage. It is claimed that considerable saving in fuel results from the use of orifice plates or orifice studs on the perforated pipes employed in saturators for the manufacture of sulphate of ammonia.

It was Reported at a recent meeting of the Bourne (Lincs) U.D.C. that since 1939 the annual consumption of gas had increased from 20 million cu.ft. to 30,300,000 cu.ft., and more gas was now demanded than could be made.

Gas Consolidation, Ltd., are recommending a final dividend of 2½% actual, less tax, on the "A" Ordinary Stock, making, with the interim dividend already paid, 5% actual, less tax, for the year ended May 31, 1945, and a final dividend of 3% actual, less tax, on the "B" Ordinary Stock, making, with the interim dividend already paid, 5% actual, less tax, for the year ended May 31, 1945 (same). The net profit for the year amounts to £22,231, compared with £20,840 last year.

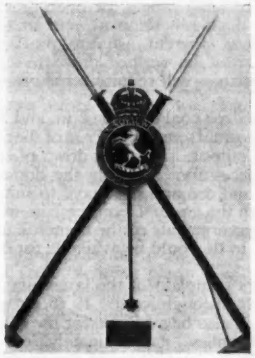
Co-partners of the Watford and St. Albans Gas Company have invested in the Company over £60,000 in Ordinary stock and in cash. A bonus of 4% has recently been distributed to them in accordance with the rules of the scheme. At the 36th annual meeting on Aug. 24, Mr. Frank H. Jones, Chairman and Managing Director of the Company, congratulated the employees on having contributed £550 during the year to hospitals, the Red Cross Society, and other deserving causes. During the war £27,000 had been invested in the employees' National Savings Group, and he hoped their efforts in this direction would continue notwithstanding the cessation of hostilities. He thanked the employees for their wartime efforts and said every consideration would be given to the resettlement in civilian life of the 230 employees still in the Forces. With one or two exceptions they had intimated their eagerness to return to the Company. Proposing a vote of thanks to the Directors and the Co-Partnership Committee, Mr. C. Gould, of the Elstree District, spoke appreciatively of his contacts during six years of active service with his former colleagues, particularly through the "Parcels for the Troops" scheme.

A New Silentbloc Catalogue issued by Silentbloc, Ltd., Victoria Gardens, Notting Hill Gate, W.11, forms a self-contained and complete reference book for every application of Silentbloc flexible bearings, anti-vibration mountings, and flexible couplings, and its contents should be of considerable value in every engineering drawing office, as well as to the engineering buyer. Finger-tip information on Silentbloc is now collected in this one book, readily accessible for those who have to cope with problems presented by oscillating movements, often unlubricated, vibration of dynamic structures, or vibration transmitted from surroundings to static structures, and transmission of power through flexible media. The basis of Silentbloc is the specially assembled pre-loaded rubber insert located between two concentric steel sleeves. The method of assembly permits in Silentbloc flexible bearings the highest available load-carrying capacity for the given value of rubber. It also allows the rubber insert, should excessive angular movement occur, to take up a new neutral position without rupture of the rubber. Copies of the catalogue are available on application to the Company's offices, written on business notepaper.

At the Beginning of the war the Birmingham, Liverpool and London works of Falk, Stadelmann & Co., Ltd., were placed at the disposal of the Government, and several were subsequently greatly extended both in scope and plant. A great variety of war material was produced for the various Government Departments, ranging from heavy equipment to small component parts. Here are a few of the items: Highly specialized types of sheet metal work for aircraft; radio location equipment; primers and primer bodies; magazines; plastic detonator holders; delayed action fuses; components for insecticide sprayers; sea markers; ammunition boxes; valve cases; switchboards for travelling workshops; lighting units and equipment for innumerable war purposes, including a wide range of Naval lighting and signalling lamps. The factories equipped for the production of goods in the heavy or large categories made their contribution in the shape of canteen equipment; heating and cooking stoves; mine contacts; cylinder cartridges; depth controllers for torpedoes; hydrostatic switches for use with mines; and detonator releases. No doubt the firm's wartime experience will be most valuable in the reversion to peacetime products.

South Suburban Home Guard

The history of the 19th County of London (South Suburban Gas Company) Battalion of the Home Guard, from its formation in June, 1940, to its stand-down last December, has been written by the Battalion Commander, Lieut.-Colonel J. A. Gould, and produced in book form, with many interesting photographs. The Directors of the South Suburban Gas Company have presented a copy to each member of the Battalion. Reference is made to the extremely difficult conditions under which Home Guard duties were at times carried out by members of the Battalion. Many of the officers and men had responsible civil duties on the works and district, yet even during the great air raids of 1940–41 training was continued. There was no incident on works or district where the personnel attending to it did not include many of the Home Guard ; indeed it is true to say that the backbone of the Battalion was composed of those officials and men who were most involved in the Company's civil measures for combating the effects of enemy bombing action and maintaining continuity of gas supply to industry and the public.



The Trophy of Arms.

A picture of the Trophy of Arms presented by the Battalion to the Gas Company appears as a frontispiece. It consists of a pair of pikes and a metal cudgel supplied to the Battalion before the general issue of modern weapons. The pikes are crossed and the cudgel suspended between their hafts. Surmounting them is a carved and painted wooden badge of the Queen's Own Royal West Kent Regiment, whose cap badge the Battalion had the honour to wear. The badge is that which appears on the regimental colour of the regiment, and was suggested by Sir Gerald Wollaston, Inspector-General of Regimental Colours and Norroy and Ulster King of Arms, whose advice was sought on the matter. Sir Gerald also arranged for the badge to be carved privately and to be painted at the College of Arms.

Fixed beneath the arms is an inlaid tablet describing them. The trophy forms a fine memento of the Battalion, which was raised principally from the Company's employees at Sydenham, Bromley, St. Mary Cray, Crayford, Dartford, Sevenoaks, and Tonbridge.

Model Kitchens at Watford

A display which provided a centre of interest to visitors to the Food Production Show at the Watford Town Hall recently was the stand of the Watford and St. Albans Gas Company. Many enquiries were received concerning the two kitchen units and latest models of gas cookers exhibited.

To the left of the stand was displayed a package kitchen built as a complete unit to provide modern kitchen facilities for the average house or flat. This kitchen includes a built-in gas cooker by the Parkinson Stove Co., Ltd., and a gas refrigerator by Electrolux Ltd., as well as numerous cupboards for kitchen utensils and supplies; novel features were the six plastic containers for cereals, &c., and a built-in garbage container. The sink and double drainer-board were vitreous enamelled for easy cleaning.

The other kitchen comprised several separate units which could be arranged to suit individual requirements. This was particularly suitable for those wishing to modernize their existing kitchens. Again there was plenty of cupboard space, and a gas cooker by R. & A. Main, Ltd., and a gas refrigerator by Electrolux, Ltd., were incorporated.

Space prevented display of all types of units to make up a complete planned kitchen, but those shown indicated the flexibility of a scheme whereby separate units are used and arranged to meet the particular requirements of the housewife. Both these units were of pressed steel, attractively finished in cream and black synthetic finish, enabling them to be kept clean with the minimium of effort. It is anticipated that these new kitchens will be available within the next twelve months. The pressed steel units were manufactured by Messrs. Sankey-Sheldon.

At a Meeting of the Birmingham Gas Committee on Sept. 24 testimonials were presented to seven employees of the Gas Department whose service totalled 277 years.

Application Forms and particulars of the Associate Membership examinations of the Institution of Chemical Engineers for 1946 may now be obtained from the Hon. Registrar at 56, Victoria Street, London, S.W. 1. They should be returned before Dec. 1.

The Annual General Meeting of the Southern Association of Gas Engineers and Managers will be held on Oct. 10 at Grosvenor House, Park Lane, London, W. 1, commencing at 2.45 p.m. under the Presidency of Mr. W. A. Howie. A presentation will be made to Mr. R. C. Taylor, M.B.E., B.Sc., M.I.Mech.E., of a Memento of his term of office as President of the Association, and Mr. Howie will give his Presidential Address.

The Gas Light and Coke Company is to reduce the price of gas to consumers. Details of the new prices will be issued within the next week or two. A reduction has been made possible as a result of increasing business, but the new prices will not compare with those prevailing before the war owing to the considerable increase in costs.

The Australian Gas Institute Transactions for 1942–44, just to hand, show that a lively interest was maintained throughout the three years covered by the volume. Research, technical development, training of engineers, educational needs, and post-war reconstruction problems were all subjects of Papers presented at the annual and sectional meetings of the Institute. The lists of new elections at the annual meetings indicate a steady growth in the membership.

A Romance of War Industry has been revealed at Huddersfield. Messrs. Thomas Broadbent & Sons, Ltd., who normally make centrifugals and other plant employed in gas-works processes, were for the last three years of the war engaged as leader firm in a group of three engineering companies in the building of miniature submarines, known as "X" craft for crews of four, specially designed to search out and destroy enemy ships which would not come out to fight, and could only be attacked and sunk at anchor. Submarine crews lived in Huddersfield with their craft during the completion stages, and in the early hours of Sunday mornings accompanied the vessels, which were disguised as large motor boats, along deserted, guarded streets to Hillhouse, where they were put on special trains for the Clyde—and the sea. The Captain of the flotilla which used "X" craft, in a congratulatory letter to the firm, stated that officers and men of the flotilla had gained two Victoria Crosses, seven Distinguished Service Orders, ten Distinguished Service Crosses, three Conspicuous Gallantry Medals, two Distinguished Service Medals, and 26 Mentions in Despatches.

Shrewsbury Gas Light Company records in its 125th annual report an increase of 3.8% in gas sales during the year ended June 30, compared with the previous year. There was a profit on revenue account of £41,063 against £32,505, and a final dividend of 4½% makes a total of 7½%, less tax, for the year. Summarized details of the accounts for the war years show that the amount of gas sold rose from 1,655,233 therms in 1940 to 2,237,604 in 1942, and fell to 2,178,306 in 1943 and to 2,164,403 in 1944. For the year covered by the report the total was 2,246,759 therms. There are now 12,301 consumers, of whom 8,857 have prepayment meters.

The Colonial Gas Association reports a net profit of £83,296 for the year ended June 30, after providing £38,000 for taxation. After adding to the net profit the balance brought forward and deducting the interim dividend paid in April, there is a net revenue balance of £46,828, from which final dividends are to be paid, making 8% (Australian currency) on Preference shares and 5% on Ordinary shares. Gas sold from the Association's works showed an increase of 6.7% and the quantity sold by subsidiary undertakings an increase of 3.4%. To strengthen the production capacity of the Dry Ice (Queensland) Proprietary, Ltd., the portion of the solid CO_2 plant available consequent upon the reorganization of the Mount Frome Lime Company's CO_2 works has been transferred from Sydney to Brisbane. Mr. C. F. Broadhead has been appointed Chairman in succession to Sir Arthur Robinson, who died in May.

We have received from Mr. G. E. Currier, Engineer and Manager of the Bradford Gas Department, a photostat copy of an aerial map of Bradford, taken by the Germans, which came into his possession after the cessation of hostilities in Europe. It would appear that the photograph was taken in 1938, and the date "August, 1940" stamped on the side of the map coincides with the date of the air raid on Bradford, when the gas-works sustained damage. In addition to geographical details and target height, the map is keyed with detailed references to the items of vulnerable plant, and the gas-works and the electricity works. The total area of the gas-works is given as about 110,000 sq. metres, and the dimensions of the gas-making plant, purifiers, by-product plant, gasholders and built-up coal stores are shown separately.

South Wales Gas Coals*

By Major E. IVOR DAVID

THE supply of gas coals in the industrial area of South Wales is causing serious concern to the users. Gas coals are required for:

	Tons p.a.
1. Gas undertakings	500,000
2. Coke ovens	2,400,000
3. Gas producers at steel works and other metallurgical plants	850,000
	3,750,000

The classification of the above requirements is chiefly by size. Metallurgical coals for gas or coke making further specify limits to the sulphur and phosphorus contents.

The normal screen sizes are given below:

	in.	in.
1. Slurries and fines, below ½ mm., also dust collected or extracted at screens, mechanical or dry cleaning plants.		
2. Duff	0	7/16
3. Peas	5/16	5/8
4. Beans	9/16	1¼
5. Nuts	5/8	3
6. Cobbles	2¼	4
7. Large. Over 4 in. dia. round holes.		

Sizes 1 and 2 are taken by coke ovens.

3. Boiler fuel for mechanical or hand stokers.
4. Intermittent vertical and some continuous vertical retorts.
5. Continuous vertical retorts.
6. Gas producers at steel works.
7. Domestic consumers, railways, and horizontal retorts gas plant.

The quality of these coals in war-time has deteriorated beyond all commercial limits; ash contents up to 27% have been experienced. The tendency for gas-works to buy in the cheapest market has somewhat limited their scope, as allocations by the control are based broadly on pre-war contracts. The higher quality coals commanding higher prices are claimed by steel works, domestic suppliers, and railways.

Bituminous coals are graded at:

I. Volatile	17 to 23%
II. „	22 „ 30%
III. „	29 „ 36%

(All figures are d.a.f. basis.)

Gas coals are usually obtained from the Grades II and III.

Gas Coals

The total yearly output of gas coals over 28% volatile in this area amounted in 1942 to 4¾ million tons p.a.; in addition about 150,000 tons is imported from M.A.D. for gas-works and gas producers. If coals down to 23% volatile are included, up to 10 million tons per annum is available.

The South Wales collieries supplying these coals do not all put them on the market in the clean, carefully sized condition that the Yorkshire collieries do.

Many of the South Wales gas coal collieries have no washeries, and some even no screening plants. Through coal (actually all coal through 2½ in. round holes), is their normal supply to gas-works. A typical screen analysis of such coal would have:

60%	below	¼ in.
72%	„	½ „
90%	„	1 „
96%	„	2 „
4%	over	2 „

This gives fair results in horizontal or intermittent vertical retorts, but is not suitable for continuous verticals. The unwashed coals are excessively high in ash, and the resulting cokes still higher.

Continuous vertical retorts were developed chiefly for Yorkshire sized coals, with moderate swelling indices. The throughput is lower with the higher swelling South Wales coals, and the gas per ton is also lower. Some concerns keep a reserve of Yorkshire coal for heavy load periods or accidental shut-down of some of their retorts.

Practically all the coke oven plants have washeries associated with them. Furnace and foundry coke has almost invariably to be sold to a rigid chemical and physical specification. The ash content of coke oven coke is, therefore, lower than the gas-works coke, the consumers of which have to put up with the high ash. The coke oven coals are the smallest sizes, 0 to ¼ in., crushed if necessary, and in some instances dried before charging.

It is essential that the quality of the domestic coke be improved if the proposed coke burning boilers, cooking ranges, or open fires are to be successful. High ash means dust, ash removal, and in some cases clinker. Local coals with low inherent ash are practically exhausted, and the available coals must be washed down to something under 10% ash. Colliery companies will require some pressure to make them install washeries.

Continuous vertical retorts require sized coal between ⅞ in. and 2 in. (nuts). The quantity available from normal screening of run of the mine coal is barely 11 to 12% of the total output. Breaking down of large (as in the anthracite field) will be necessary. Possibly the domestic consumer of coal will learn wisdom and demand sized coal to suit his fire or range; this would work in with the gas coal requirements, as the larger nuts and cobbles will fill the requirements of the domestic user. The duff produced in breaking (¼ in. to 0) would be available for coke ovens.

The steel works producer operators complain of the large quantity of fines accompanying their nut or through coal. If these were properly screened, then this duff would also be available for the coking plants which depend on outside supplies. Unfortunately, out of 44 collieries mining gas coals (over 28% volatile) in the South Wales districts only 19 have plant suitable for the preparation of washed and sized products.

Medium and lower volatile coals are used for blending with high volatiles at coke ovens to produce high shatter metallurgical cokes. These coals could also be used in vertical retorts, reducing the swelling tendency, but blending arrangements are not yet available at gas-works. That there is scope in this direction is indicated by the fact that the most efficient continuous vertical retort plant in this area uses a straight 17/18% volatile small nut coal, washed to a moderate ash content and well screened. A gas production of 17,000 cu.ft. per ton is achieved, and 16½ cwt. of coke with an ash content of 11½% is obtained.

Coke ovens require 200,000 tons per month from ¼ in. to 0, and with an ash content for furnace cokes of under 7%, and for foundry cokes under 5%. These should also be of low sulphur and phosphorus content. Of these 200,000 tons, under 100,000 tons is at present obtained from the bituminous III class; the remainder is bituminous I and II classes. 55,000 tons per month, ½ in. to 3 in., is now taken by steel works gas producers; ash content 7% and low sulphur and phosphorus is required. 35,000 tons per month for gas-works; ash content required not more than 7%. Sizes depend on the type of retort. For horizontals through or large is required. For continuous verticals, nuts ⅞ in. to 2 in.; for intermittent verticals sized coal is better, but through can be used.

A slight re-arrangement of sizes would enable all those to be provided, and still leave large coal for domestic and railway users, until they learn wisdom. 400,000 tons will contain 200,000 tons of duff ¼ in. to 0, with a margin for those electricity stations who still have to use high volatile coals, though these should be transferred to steam coals at an early date.

Sizes from ¼ in. to 1 in. should be utilized for boiler firing on mechanical stokers; 1 in. to 2 in. for vertical retorts; 2 in. to 3½ in. to steel works gas producers. Horizontal retorts could have their choice of through or 3½ in. upwards according to their methods of operation.

To provide coals of the necessary ash contents will entail cleaning. Present day washing of ⅛ in. to 0 in Baum, Rheolaveur, or other washers is not satisfactory. All coal below ½ mm. should be cleaned by froth flotation; the remainder can be cleaned in the standard washeries. Slurries and dust obtained from the normal washing processes of the larger sizes should also be passed through the froth flotation cleaner. Flocculation, thickening and filtering may recover the slurry solids, but does not clean them, and sometimes introduces harmful constituents.

Baum washeries will clean coals up to 3 in. satisfactorily, and Chance up to 6 in. Above that size hand picking must be relied on.

Consumers who demand low ash coals must be prepared to compensate the collieries for the discards necessary to eliminate the ash-forming impurities, bearing in mind that to remove 5% of ash entails discard of considerably higher order. Washability curves based on float-sink tests give the actual discards for various final ash contents, and the cost of washing to any ash percentage above the inherent ash can be determined beforehand.

To provide the above quantities of sized coals, breaking of large will be necessary, as the proportions of the sizes required are not available in the natural state. The extensive experience of the anthracite industry should be utilized. Modern pin breakers are available which will break large coal with a minimum of fines. Spacing the pins can be arranged to produce the required proportions of the sizes needed. If the large is hand-picked properly, washing may not be necessary, only dry screening.

A large proportion of the collieries are not at present equipped with either screening, cleaning, or breaking plant. A central washery or washeries may be necessary, more particularly as the output of many of the collieries is too low to justify cleaning and breaking plant.

* From a Paper to the Wales and Monmouthshire Association of Gas Engineers and Managers, September 13.

Advantage could be taken of these centralized plants to blend coals to produce suitable cokes while retaining good gas-making properties.

Medium volatile coals might be introduced to improve the shatter test of cokes as in the coke oven industry. This would also help to economize the higher volatile coals, and reduce the swelling tendencies.

Another factor affecting screening plant is the development of water infusion for dust laying at the coal face. This causes the coal arriving at the screens (particularly the fines) to be too wet to screen properly. Coal will screen when thoroughly wetted and water-borne or when dry (*i.e.*, below 4% of external moisture), but in the range from 4% to 20% moisture, it is difficult to separate the smaller sizes with any degree of certainty. Through coal 2½ in. to 0 can be extracted; this must then be wetted and screened on wet screens of the high-speed vibratory type, to extract the peas, beans, and nut sizes. This may be done before or after washing. The ½ mm. to 0 and slurries would then be passed to the froth flotation cleaner and the ½ mm. to 2½ washed in a Baum or other standard plant.

Moisture should be removed to the limit before carbonizing; in several instances at coke ovens gas fired driers are utilized to bring the moisture down to 3 to 4%.

Centralized cleaning and blending is already functioning satisfactorily at the steel works coke oven plants, up to 30 collieries contributing varying quotas to the total. The bunkers and mixing belts of these blending plants facilitate draining, and driers are not absolutely necessary. Reduction in the deliveries from M.A.D. are threatened, and the plan outlined should therefore receive early consideration.

A washery to deal with a throughput of 1,250 tons per day costs £30,000 (pre-war price), plus siding accommodation, stocking ground and storage bunkers. The addition of a froth flotation washer would make this a complete unit, capable of a throughput of 1,500 tons per day.

Generally the direction of progress should be—

'1. All high volatile coals (27% and above) should be allocated to gas-making, either at coke ovens, gas-works or coalite plants where the by-products are recovered.

2. Lower volatiles, 20–27%, to steel works and gas producers, other than by-products recoverers.

3. Railways should be instructed to use 18–20% volatile cobbles.

4. The remainder of higher grade coals should be reserved for export.

5. Domestic users should be encouraged to use steam coal cobbles (14–18% volatile), coke, anthracite or manufactured fuels, all of smokeless qualities and low ash content.

6. Second quality steam coals (small sizes) should be used for boiler firing.

Reserves of workable coal seams above 24 in. thick have been estimated on several occasions since the Commissioner's Report in 1871. These gave figures varying from 36,000 million tons down to 28,000 million tons. It would appear that, subject to a supply of miners and finance, ample gas and coking coals will be available for the next 50 years, with a declining output for a further 50 years, but still sufficient for the Gas Industry.

Valuable data on the Coals of South Wales are given in the Fuel Research Bulletins, Nos. 55 and 56, the Fuel Efficiency Committees Publication F.E.C. 164, and the Ministry of Fuel and Power's Statistical Digest; these should be available to every member of this Association.

DISCUSSION

Mr. H. BLYTH (Colwyn Bay) said the Gas Industry was compelled under statute to sell gas in conformity with certain standards of calorific value and purity, and he saw no reason why the suppliers of raw coal should not be compelled to supply their commodity under a guarantee. They should all be able to purchase coal to a standard specification, and the price should be based on the quality of the coal. The Paper did not present a very rosy picture of what was before the coal industry in South Wales. The Gas Industry had made big strides during the last few years in the carbonization of coal and the use of its by-products. One of the reasons why there had not been much advance in South Wales had been the lack of freedom of choice in coals, and he hoped that under the new Government there would be some restoration of that freedom. If, as stated in the Paper, the output of the collieries in that area was not big enough to justify the installation of washers, the only answer was the installation of a central plant, but he contended that it should be the job of the coal industry, which should not ask its customers to do it. He asked whether washers were the only means of cleaning the coal, or whether there was not some kind of pneumatic process which would avoid a high moisture content, the cause in a good many cases of high maintenance charges on coal handling plant, and particularly bunkers. It was becoming a regular practice now to have to renew steel coal bunkers, particularly on vertical retorts, all due to the high moisture content in the washed fuels.

Major DAVID said a pamphlet had been published on the purchase of coal on a calorific basis, the title of which he would give in a written answer to the discussion. With regard to the persons responsible for the erection of washing plant, the coke oven people had found it worth while to have their own washery. They had very big outputs centralized in one place, and it gave them tremendous freedom in purchasing in the open market coals of particular properties. The bigger steel companies all had their own washeries. Dry cleaning had been tried in three places in South Wales. The first had had to be taken out; the second had failed completely and the colliery concerned had shut down; the third was working, but expressions of opinion about it were very guarded, and he would not like to say anything about it. It was not a success with South Wales coals. Each type of washer was suitable for a particular type of coal, and dry cleaning had not been found to be suitable for any Welsh coals.

Mr. W. CLARK JACKSON (Neath) said he felt that the Author's general statement with regard to the direction of progress was a starting-point for the coal industry. There must be a definite national policy. Coal and agriculture were the only two indigenous industries in the country. Agriculture, thank goodness, had received a good deal of attention, particularly during the war years, and at present it had a very much higher standard of operation than it had ever had. The same unfortunately could not be said about coal. Coal had been steadily deteriorating through the war years, and it was not too good before the war. A national policy was needed, and the six items which the Author had set out offered the basis for such a policy. With regard to the quality of the coals as delivered to the gas-works and the coke ovens, the coke ovens had got over a great deal of their trouble by installing their own washeries and their own grading plants. In a similar way the steel works had got over their difficulties. What was going to be the position of the Gas Industry? Were they going to install a washery to which all the coals they required should be sent, and from which allocations could be made to the various undertakings throughout the district? Personally he thought the idea was good. At the same time he said quite frankly that the Gas Industry in South Wales in the past had an opportunity of selecting and creating a market for certain quality coals, and the opportunity was not taken. When the first washeries were put up many years ago the position could have been made secure for a much better quality coal than they were obtaining to-day. There were coals to-day which had deteriorated very little, if at all. There was a time when for a period of two years he bought coal on behalf of the undertaking which he administered with a 5% moisture and 5% ash content, with a penalty bonus of a shilling per ton for each 1% up or down, but nobody followed his lead and the whole thing fell away to nothing. He had been very worried because he had received so many complaints about poor quality coal. The Advisory Committee had considered the question very carefully, and they had initiated certain tests which were to be carried out with a view to bringing cases of really bad quality coal to the attention of a new committee which had been set up to investigate each case. He hoped they would meet with success, for if they could prove their case in respect of these investigations certain of the coals for which they had been having to pay top price would be degraded. He felt sure that if those coals were degraded by anything to the extent of fourpence, sixpence, or even by a shilling a ton the colliery owners would very soon see that an improvement was made. He noticed that the Author had suggested that continuous vertical retorts should have nut coals. From time to time, with the collaboration of various coal supply officers, they had introduced certain nut coals from Derbyshire and Yorkshire seams into South Wales where vertical retorts were in use, and they had found that even at the higher price that the undertakings had had to pay for such material the financial gain had been considerable, bearing in mind the greater production per retort and per man, the lower ash content, and the freedom from troubles.

Major DAVID said there was little to answer in Mr. Clark Jackson's remarks, but he would like to advise members to read an excellent article in the current issue of the Journal of the Institute of Fuel by Dr. Grumell, giving the costs of washing, and showing how those costs were made up.

Major W. MORLAND FOX asked whether it would be possible for the suggested central washery to deal efficiently with the intake of different coals from different seams, and in different sizes; he also asked how the whole thing would be worked. It appeared to him that the coal would have to be hauled from the coal area to the central washing plant and back again to the gas undertakings. His personal view was that the grading should take place at the pithead. He had been in America during the war, and he could say that the coal that came from the pithead there was much better graded than the coal they saw in this country.

Major DAVID said the coal for the Cardiff coke oven plants came from 30 different collieries, and varied in quantity from 2,000 to 20 tons per week. The stringency was so great that they had to scour round to get all the coal they could. At the Margam coke ovens the coal came from 28 different collieries. It would therefore be appreciated that the question of dealing with different qualities of coal was not an easy one. The whole question of haulage costs and other costs was one which it was possible to work out, and it would be an interesting calculation from the accountant's point of view. They had to remember that in many cases the raw coal from the different pits contained up to 35% of ash, which had to be washed down to 7 or 8%. Many of the pits were so small that it would not pay them to establish washing plants. There was a definite minimum limit

to the size of modern washeries, and even they were too large for efficient operation for some of the collieries mining bituminous coals. Collieries with outputs as low as 120 tons of coal per day could not install such plants.

Dr. NORTH, speaking as a geologist, said there was still a great deal to be learnt about coal, and about the suitability of the different qualities for different purposes. He suggested that in connexion with the difficulty of persuading domestic consumers to use lower quality coals, a little more pushing of the gas poker might be a useful solution. It would be well if they could install gas points wherever solid fuel was likely to be used in all new houses.

Mr. J. POWDRILL (Pontypool), in proposing a vote of thanks to Major David, said the Author had brought out the point that the coal industry was under indictment. He would hate to think that the Gas Industry was suffering from the same kind of criticism as the coal industry. There did not seem to be in the coal industry that spirit of consumer service that was found in the Gas Industry.

Mr. A. IVOR JONES (Holyhead), in seconding, said he hoped that as one result of the Paper some progress might be made towards diverting suitable coal to the needs for which it was required.

Major DAVID briefly replied.

War-Time Development at Airdrie*

By DAVID L. DICKSON,

Gas Engineer, Airdrie

FIRST let me express my appreciation of the honour you have shown me by the invitation to read a Paper to this old, yet ever live, Association.

The Gas Industry has had a long and honourable career as a public servant, and has served the country well, both in war and peace. The greatness of an industry is reflected by its capacity to meet changing circumstances, and to overcome difficulties thus created, whether within or outwith its control. The recent European War has been such a test, and the Gas Industry as a whole has acquitted itself well. It has maintained its previous high standard, despite many limiting factors such as—

(1) Difficulty of obtaining labour (technical, skilled and unskilled).

(2) Poor and inadequate supplies of coal.

(3) The ever increasing cost of coal and the consequent need to ensure the utmost efficiency.

(4) The difficulties in complying with, and overcoming, wartime controls and emergency regulations, which while undoubtedly very necessary, were, and still are, a big handicap to speed of execution.

The Airdrie Gas Undertaking

Airdrie Gas Undertaking at the outbreak of war was in rather a precarious position. It had just emerged with obsolete plant from a period of over capitalization, during which time only the minimum works maintenance had been done. To increase the efficiency of the undertaking, however, the Council had decided to build a new carbonizing vertical retort plant. The contract for this work was entrusted to Messrs. West's Gas Improvement Co., Ltd., of Manchester, and was signed in March, 1939, the year in which the European War broke out, and despite numerous difficulties was actually completed in October, 1940. An able description of the new plant was given to this Association by Mr. C. A. Poulson at the Spring Meeting in 1941, and it is therefore unnecessary to give any further details of its construction. It is satisfying to note, however, that at the time this unit was commenced the maximum daily gas output was 500,000 cu.ft., at which time it was felt that the adoption of the new plant with a capacity of 800,000 cu.ft. per day would give adequate reserve to meet all requirements for years ahead. Actually this has been far from the case, for our maximum day has since risen on occasion to 1,004,000 cu.ft. Since the new plant was put in commission approximately five years ago, every retort has been constantly in use, and on no occasion has even one retort been let down for repairs, apart from scurfing.

In 1940, with the exception of the new carbonizing plant, none of the ancillary plant was in a fit state to go for any length of time, and with increasing output it became abundantly clear that strong measures would require to be adopted in order to give some freedom from breakdown and worry, and to ensure a continuous supply of gas to the district. The Town Council were fully aware of the unpreparedness of their undertaking, and in 1941 a report on all necessary work to ensure and safeguard the gas supply to the district was put before them to which they agreed in principle, but only provided the cost of gas to the ordinary domestic consumer was substantially reduced, the price of gas then being 4s. 9d. per 1,000 cu.ft. for ordinary meters, and 5s. 2d. per 1,000 cu.ft. for slot meters.

Under those conditions any plan of campaign had to be very carefully considered and judged from all angles before being put into execution. It was finally agreed:

(1) To take immediate steps to repair the ancillary plant most needing attention.

(2) As the increasing output justified it, to replace existing obsolete units with units of more modern design and construction.

(3) To arrange all new and remodelled plant so that the utmost advantage could be made of the works site for future expansion up to the maximum capacity of the site; and—

(4) To pay for all, or as much of the work as possible, from revenue.

System of Works Maintenance

The first six months' working of the new carbonizing plant was carefully scrutinized, and it was quite evident from this that our hopes of economic working would be more than fulfilled. As time went on further substantial savings in coke and breeze handling were effected by replacing a horse and cart with a motor lorry, at the same time arranging for a new series of chutes from our coke bunkers, which entirely obviated all manual handling of coke and breeze. These latter arrangements more than paid for themselves, and in the first six months of their use we recovered the entire cost of the lorry and the chutes, which in all amounted to approximately £600. They had the further advantage that they freed manpower at a time when labour was becoming increasingly scarce.

It soon became evident, however, that we were going to be faced with labour difficulties, due of course to the fact that the exigencies of war were taking away all our young men. Again, our stokers had been used to horizontal retorts and consequently had to be trained to the more mechanical verticals, while certain of the older men, due for retirement, would not face up to increased responsibility. To ensure the utmost control each man was given a set of duties, and those were rigidly adhered to. Only by so doing could we tie down responsibility to any one man or shift. We found this in practice to be all right for stokers' routine duties, but from a maintenance point of view it left very much to be desired, as was quickly shown in the maintenance of our conveyors and in poor heats through fluctuating temperatures due to high ash content in producer coke, &c., with the result that we finally decided to make one man responsible for a set maintenance programme. We were very fortunate in obtaining a man who had previous vertical retort experience and we gave him the following scheduled duties to work to, all work being specifically stated so that no overlap or omission would take place:

Duty Sheet

(1) All flues and nostrils in the retort setting cleaned twice per week, each side of retort being done on different days to obviate upsetting any set of two retorts. Nostrils and flues cleaned early each shift to allow of any damper adjustments being made during daytime.

(2) By-pass duct to waste-heat boiler cleaned twice per week.

(3) Waste-heat boiler tubes cleaned every second day.

(4) Collecting mains flushed out twice per week.

(5) Coal and coke conveyor greased every second day, also all lubricated parts connected with driving of conveyor and coal breaker oiled and greased. Where grease cups were used (all hand operated cups were replaced by spring loaded cups).

(6) Oil levels of conveyor, extractor engines and waste-heat boiler turbine checked up every morning.

(7) Coke extractor gearing greased every second day, and gear boxes on extractors topped up every two weeks.

(8) Connersville meter and benzole plant oiled every day, and Connersville meter flushed once per week.

(9) "A" feed water pump and "A" extractor engine put into operation on Monday of each week, "B" units on Friday.

(10) Retorts prepared for scurfing and restarting each week-end.

(11) Beginning of each month conveyor engine, extractor engines and waste-heat boiler turbine sumps drained, flushed and refilled, and guide carriages of holders greased.

(12) Any sign of wear, mechanical failure, or unusual happening is reported immediately and noted on works sheet.

* Paper to the North British Association of Gas Managers, Sept. 7, 1945.

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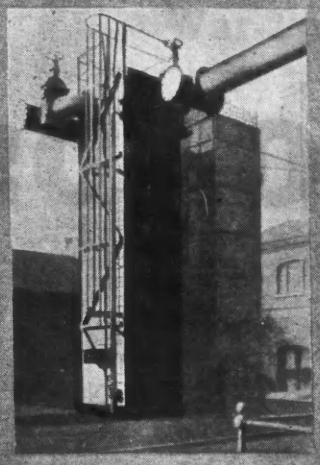
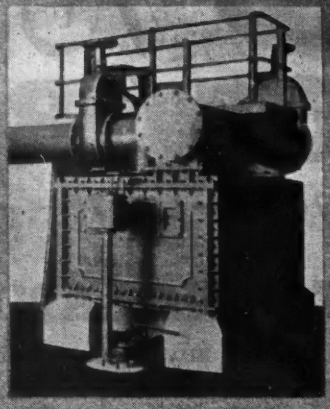
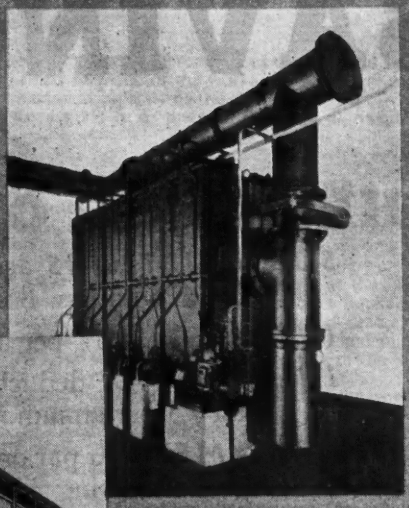
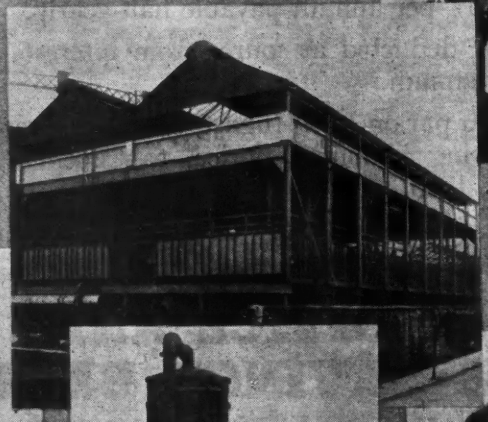
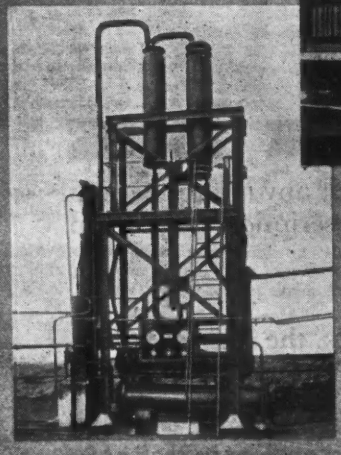
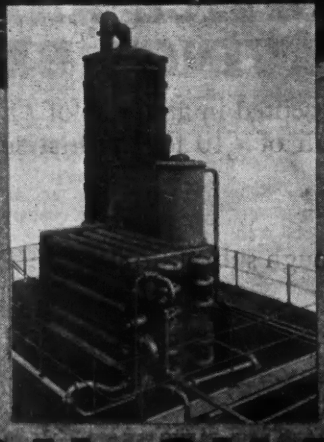
GAS WORKS PLANT

NC

NEWTON CHAMBERS

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This rigid maintenance has borne good fruit and its importance cannot be over emphasized. Annual returns over the past years have shown that our results have been consistently good, and that the efficiency of the unit has been maintained despite the gruelling test to which it has been subjected. We have been working to full capacity most of the period, and have dealt with all classes of coal, caking and non-caking. In emergencies we have had to use coking dross, with excellent results so far as coke was concerned, although the gas yield suffered tremendously. The experience we have gained with all classes of fuel will stand us in good stead for later years when conditions become more normal.

Practical Scientific Control

Fortunately our vertical retorts had been well equipped with instruments, and it was quite a simple matter to draw up a new carbonizing sheet to give in detail full particulars of all parts of the plant. The data thus obtained has proved more reliable than unco-ordinated observations, and when tabulated enabled a close watch to be kept on results. Defects could be detected and remedied immediately they were revealed.

The instruments themselves can be read by any intelligent person, and we have been able to employ youths direct from school on this duty. We have now had two of these, each with the Higher Leaving Certificate. After a few days' training we found they could make the necessary readings, work out the data, and prepare a comprehensive daily report upon which action could be taken. In this way the youth was initiated into the details of the work, and as his knowledge and experience grew we were able to increase and widen the scope of his work.

It is necessary, of course, to keep the instruments in good working order and we allow only one individual to set and wind them, any irregularities being reported immediately. The instruments themselves must be of a good reliable type, and placed in positions where they can be easily read, maintained and cleaned. Above all, once the routine is set up it must be rigorously maintained.

The psychological element is most important too. If the chief does not go to the trouble of regularly checking the results himself and acting upon them, the persons responsible for reading and recording the observations will get the idea that their work is of no importance, slackness will creep in and the whole system will break down. Every abnormal reading must at once be followed up, the cause investigated and appropriate action taken.

The method of control will vary according to the type of plant in question. For example, we record daily the quantities of coke, water, oil and electricity used in the water-gas plant. The exact periods of working and cleaning are carefully noted. The make per ton has to be calculated because water gas is not separately metered, but every third day we carry out an exact test by passing the make into a measured gasholder. We supplement these periodical tests by testing the plant immediately it has been clinkered and heated up again. During this test we determine the back pressure throughout the unit, obtaining the exact figures for the individual parts, blast main, generator, carburetter, superheater and wash box. We are thus able to detect such irregularities as the accumulation of dust and fused ash on the top of the chequer work. Recent tests revealed a partial obstruction caused by breakage of brick and fused ash, after clearing which, we re-tested with the following results:

	Pressures on blow in inches/w.g.			
	Before.		After.	
	Total.	Absorbed.	Total.	Absorbed.
Blower outlet	29.25	—	28.50	—
Generator base	28.25	1.00	26.00	2.50
,, top	24.50	3.75	17.00	9.00
Carburettor top	22.75	1.75	15.25	1.75
,, bottom	3.50	19.25	10.75	4.50
Superheater bottom	2.00	1.50	5.50	5.25
,, top	1/0	2/1.5	1.25	4.25
Measured make over 1 hour	18,000 cu.ft.		23,400 cu.ft.	
Oil used per hour	32 gall.		30 gall.	
Current used per hour	6.1 units		6 units	

While it is not to be expected that this will happen in every water gas plant, it is a point well worth noting. In our own case we depend so much on water gas that it pays us handsomely to give the plant such small attention as has been outlined, especially since owing to urgency in building we had to use split fire brick in place of the more orthodox chequer brick, and as these are much more friable the danger of a blockage taking place is more acute. Again there is only one period in the year when we can shut down for more than three days at a time, with the result that we have to make all the more certain that the plant is thoroughly maintained and fit to meet peak loads. Our experience with water gas has shown that to maintain proper control of results a reliable type of gas meter is essential.

We found that by such means we were able to keep a fairly tight grip on the overall running and maintenance of all plant, and we extended this system of check-up by periodic tests and recording instrumental control to all suitable plant, as and when same were installed or renewed, and we found as time went on that recording instruments became a real necessity and not just window-dressing.

Works Additions and Improvements

Having taken such steps as we could to ensure effective maintenance, economical working and technical control, we were able to forecast over a reasonable time with considerable accuracy how our financial position stood, and so determine what money we could afford to spend. This was extremely important in the changing circumstances such as increasing output, increasing cost of coal, wages and materials, &c., and the need to watch very carefully the income tax position. Once we were assured that we could go ahead, we did so up to a predetermined amount.

Our first job was to draw a site plan of the works as it was in 1939 (fig. 1), carefully consider the layout, and from this visualize what

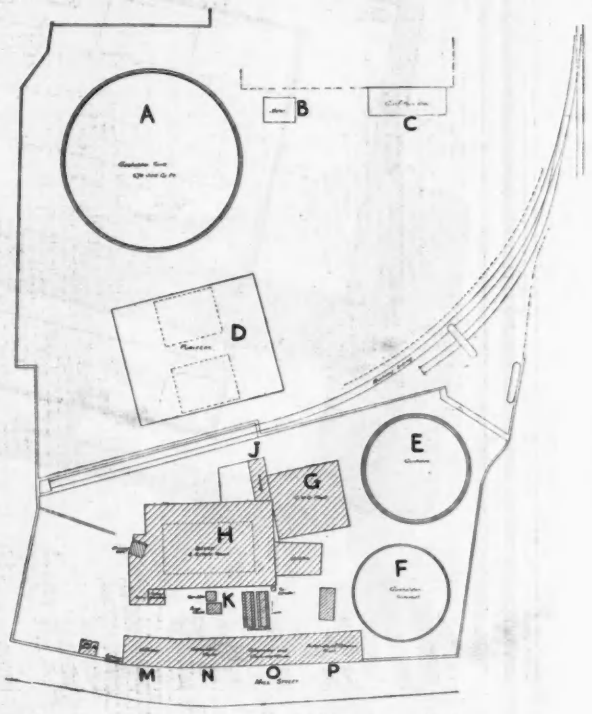


FIG. 1.—*Airdrie Gas-Works prior to* 1939.

A. Gasholder tank, 670,000 cu.ft.
B. Meter.
C. Gasfitters' Shop.
D. Purifiers.
E. Gasholder.
F. Gasholder (disused).
G. Carburetted Water Gas Plant.
H. Bench and Retort House.
J. Boilers.
K. Scubbers; Pump House.
L. Condensers.
M. Offices.
N. Exhauster House.
O. Compressor and Governor House.
P. Sulphate of Ammonia Plant.

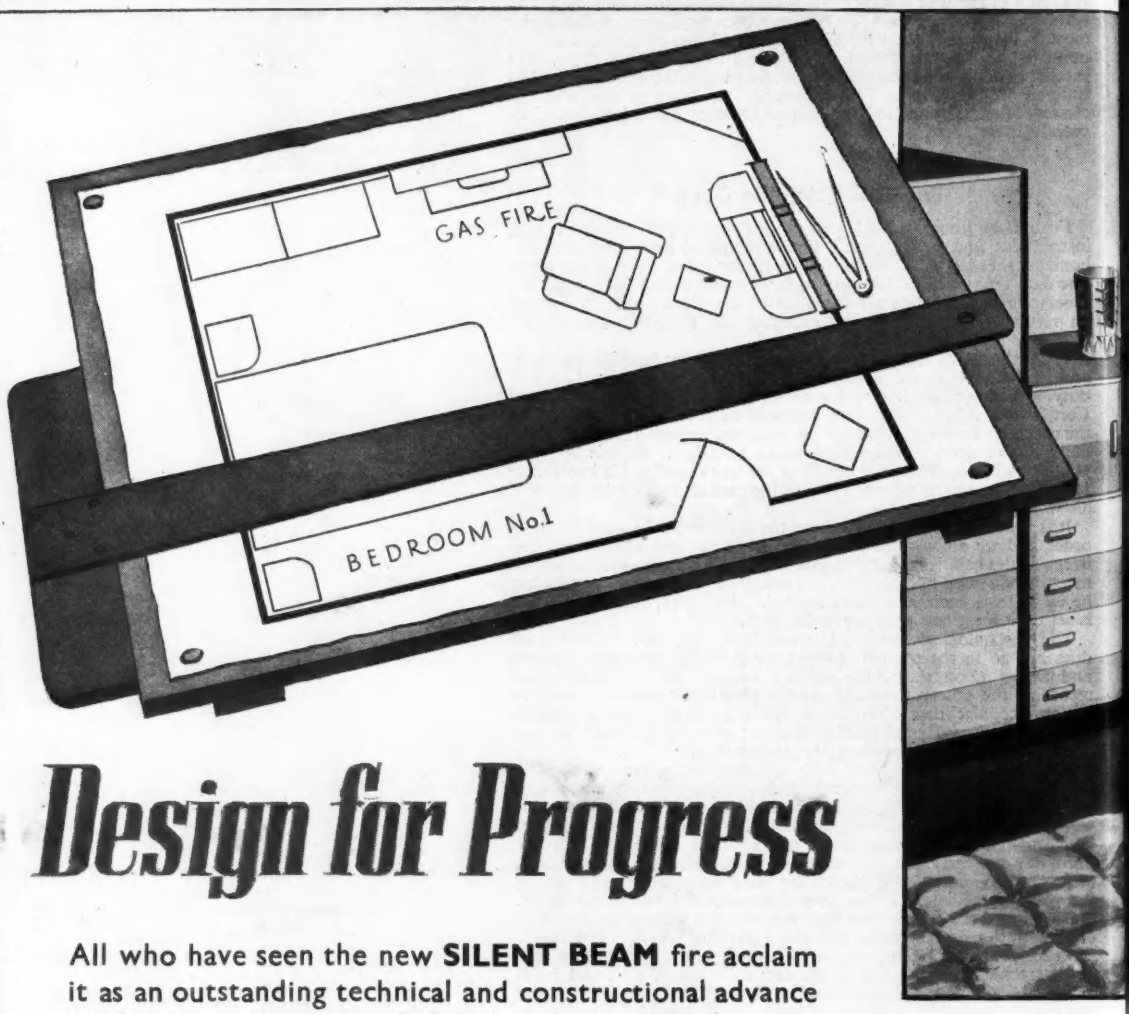
improvements were needed, and so determine the correct position of new plant, &c. Fig. 2 shows the works as it is at present, and the following list outlines what work has been done in the intervening period and paid direct from revenue:

1941–1942.

(1) A new exhauster of same capacity as that removed (50,000 cu.ft. per hour) was installed, retaining the original steam engine.

(2) A tower scrubber (make unknown) which had been out of commission for over 18 years was renovated by direct labour and birch broom filling removed and replaced by broken tiles. Two old pumps were reconditioned and made to operate with this unit, which was so constructed that it was divided into four vertical chambers (fig. 3). The first up and down pass was arranged to allow liquor in circulation to collect into a bottom cast iron reservoir, and the remaining two made to collect into a top cast iron reservoir. It was a simple matter therefore to bring down a high percentage of tar fog in the first two passes. This was accomplished by making one pump draw from the bottom reservoir and pump the liquor at a pressure of approximately 40 lb./sq.in. through a series of sprays, the pressure atomizing the liquor, so giving a finely divided spray. The nozzles were so made that the top of the spray fully covered the area of the chamber at a distance approximately 5 ft. from the point of the nozzle. The pump operating on the top reservoir was used with an open end to give a large volume of liquor in circulation. This unit was so successful that we ultimately installed two new Weir liquor feed pumps, with the result that this is now our main scrubbing unit, and we can work liquor up to 12 oz. strength in the bottom chamber and 11 oz. in the top.

(*To be continued*)



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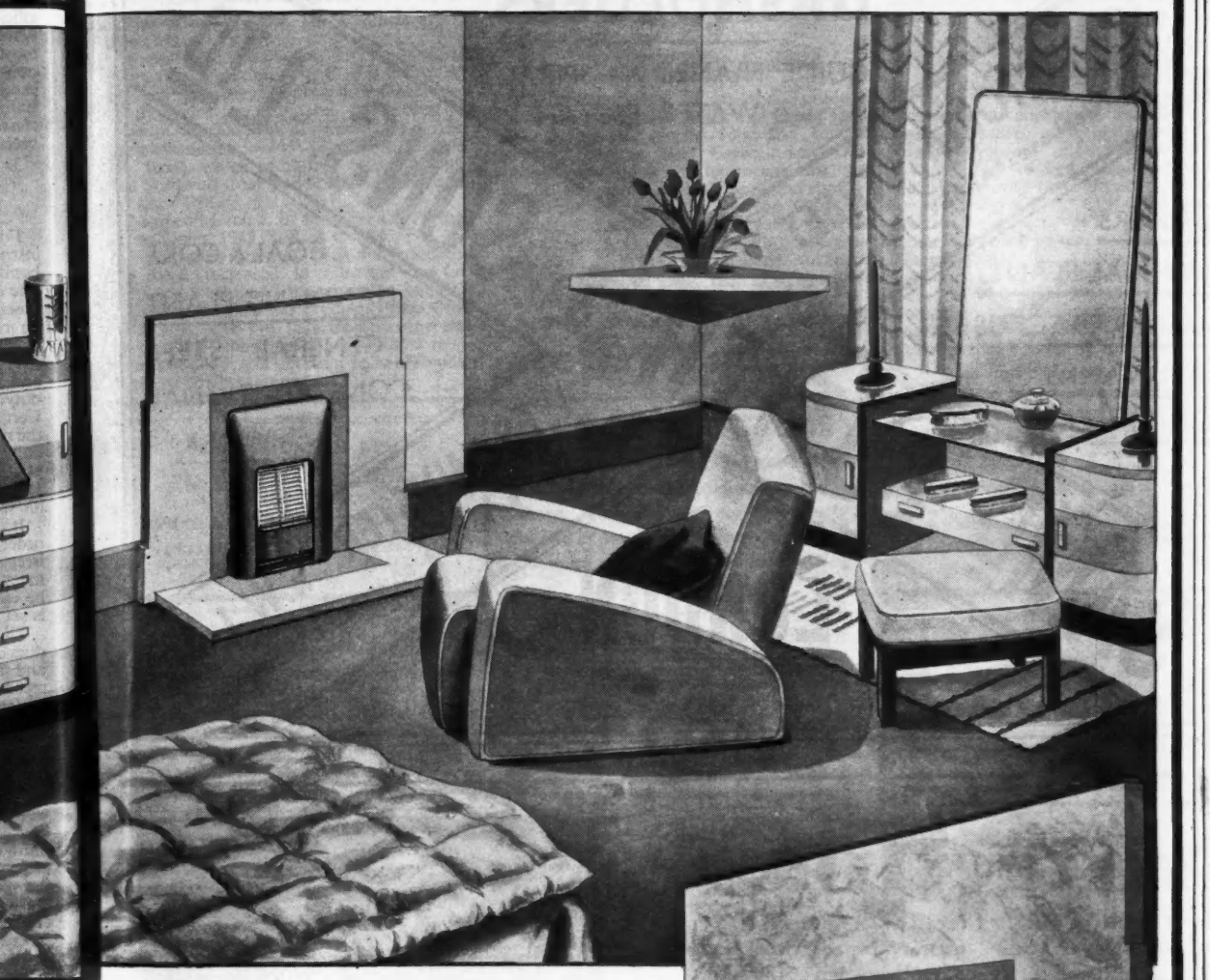

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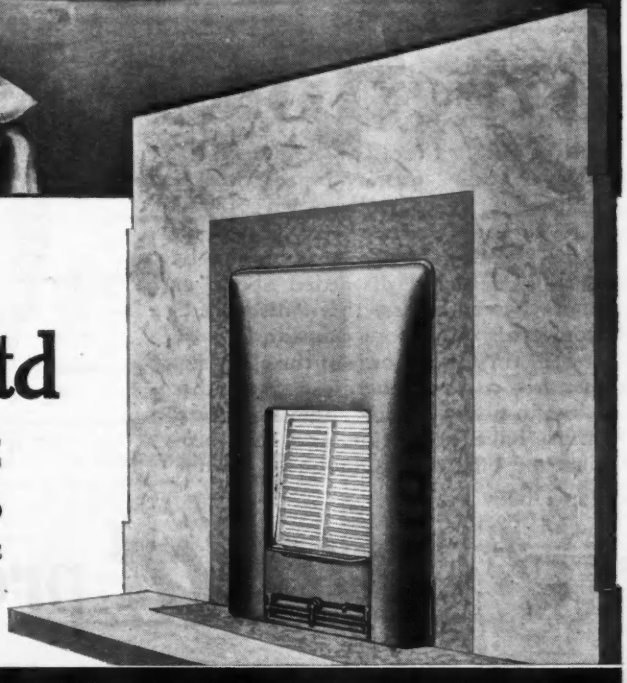

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Protection—

The Hermit Crab is literally "a poor fish," and for all we know, he may be responsible for the coining of that well-known phrase. Apparently he has neither brains nor—to put it vulgarly—guts! Else how could he be content with somebody's discarded abode as his lodging? Nevertheless, this "discarded" abode becomes his only protection (and a very efficient one) against the rigours of the elements and against his natural enemies. And this brings us to the point of this short narration . . . you must have protection and that protection must be efficient. Obviously, then—

HERMIT CRAB. A variety of crab that lives in mollusc's cast-off shell to protect its shell-less hinder parts.

your protection is the

'A & M' METER

ALDER & MACKAY LTD., NEW GRANGE WORKS, EDINBURGH, 11

GAS PRODUCTS PRICES

The London Market Oct. 1.

The prices of Coal Tar Products are unchanged.

There have been two developments of interest in connexion with Coal Tar Products, the first being the cancellation of Government contracts for toluene, and the second the issue of the Control of Benzole and Allied Products Order, 1945 (S. R. & O. 1945, No. 1064), which came into force on Sept. 1 and brings all Coal Tar Spirits under one and the same Order.

As from March 5, by the Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), the maximum price of Pitch for briquetting has been increased to 60s. per ton f.o.r. supplying works, and the prices for Road Tar, as fixed by the Coal Tar Products Prices Order, 1943, S. R. & O. No. 1528, have been increased by one half-penny per gallon. There is also an increase of 5s. per ton in the price of standard Creosote/Pitch Mixture.

Coal Tar Products Prices (No. 2) Order, 1944 (S. R. & O., 1944, No. 1051), allows increases in the maximum prices for all forms of Naphthalene.

The Provinces Oct. 1.

The average prices of gas-works products during the week were : Pitch and Crude Tar,* Toluole, naked, North, 90's. 2s. 4d. to 2s. 6½d., pure, 3s. 2½d. Carbolic acid, 60's, anthracene, creosote oil (hydrogenation), coal tar oils (timber preservation, &c.), and strained anthracene oil controlled by the Coal Tar Products Prices Order, 1943, dated Oct. 20, 1943 (S. R. & O. 1943, No. 1528), operative from Nov. 15, 1943, Naphthalene controlled under S. R. & O. 1944, No. 1051, operative from Sept. 22, 1944.

Attention is called to Coal Tar Products Prices Order, 1945 (S. R. & O. 1945, No. 229), referred to on p. 305, "JOURNAL" of March 7.

* In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Scotland Sept. 29.

Market is still quiet, although deliveries are proceeding quite satisfactorily. Refined tar*: Yield to Distillers is 5d. per gallon *ex* Works, naked. Creosote oil: Timber preserving quality,* 5¼d. to 6¼d.; hydrogenation oil,* 5⅞d.; low gravity or virgin oil,† 7¼d. to 7½d.; benzole absorbing oil,* 6½d. to 8d. per gallon. Refined cresylic acid* is 3s. 6d. to 4s. 6d. per gallon *ex* Works, naked, according to quality. Crude naphtha†: 7d. to 8d. per gallon. Solvent naphtha*: Basic prices delivered in bulk, 90/160 grade, 2s. 10d., and 90/190 Heavy naphtha, Unrectified, 2s. 0½d.; Rectified, 2s. 4d. per gallon. Pyridine†: 90/160 grade, 13s., and 90/140 grade, 15s. per gallon.

* Price controlled. † Uncontrolled.

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1,767,439	Sept. 10	20/-	30/-	Alliance & Dublin Ord. ...	115—120
900,018	May 7	6d.	6d.	Asscd. Gas & Water U'd'ts Ord.	22/—23/-
389,000	"	7½d.	7½d.	Do. Deferred	22/6—23/6
500,000	Sept. 3	2½	2½	Do. 4½ p.c. Red. Cum. Pref.	21/-—22/-
536,000	"	2	2	Do. 4 p.c. Red. Cum Pref.	20/—21/-
342,000	"	2	2	Do. 4 p.c. Irred. Cum. Pref.	19/3—20/3
561,370	Aug. 20	70/-	70/-	Barnet Ord. 7 p.c.	159—164
300,000	June 11	8¾d.	10¾d.	Bombay, Ltd.	42/-—45/-
690,407	Aug. 13	70/-	70/-	Bournemouth 7 p.c. max.	155—160
362,025	June 11	2	2	Do. 4 p.c. Deb. ...	102—107
659,955	Sept. 10	57/-	41/-	Brighton, &c., 5 p.c. Con. ...	106—114
855,000	" 24	60/-	60/-	Brit. Gas Light Ord.	120—125
545,000	June 25	2½	2½	Do. 5½ p.c. 'B' Cum. Pref.	115—120
120,000	" 18	2	2	Do. 4 p.c. Red. Deb. ...	95—100
10,000	April 23	9/-	4/6	Cape Town, Ltd., 4½ p.c. Cu. Pf.	6—7
626,860	July 16	70/-	50/-	Cardiff Con. Ord.	120—125
24,500	June 4	8¾d.	8¾d.	Colombo 7 p.c. Pref.	23/6—25/6
764,169	Sept. 24	4.78d.	6d.	Colonial Gas Assn. Ltd. Ord. ...	16/6—18/6
400,000	"	7.649d.	9¾d.	Do. 8 p.c. Pref. ...	22/—24/-
1,748,090	July 22 '40	30/-	30/-	Commercial Ord.	60—65
620,000	June 4	1½	1½	Do. 3 p.c. Deb.	74—79
286,344	Aug. 27	2½	2½	Do. 5 p.c. Deb.	114—119
807,560	" 20	60/-	60/-	Croydon sliding scale	122—127
644,590	"	50/-	50/-	Do. max. div. ...	104—109
620,385	June 25	2½	2½	Do. 5 p.c. Perp. Deb. ...	123—128
179,500	Aug. 27	50/-	50/-	East Surrey 'B,' 5 p.c.	102—107
176,461	June 25	2½	2½	Do. 5 p.c. Deb. (Irred.)...	122—127
239,135	Sept. 17	6d.	7½d.	Gas Consolidation Ord. 'A' ...	22/-—23/-
250,000	"	4½	4½	Do. Ord. 'B' ...	22/3—23/3
250,000	May 7	2	2	Do. 4 p.c. Red. Cum. Pref.	18/6—20/6
19,101,877	July 30	6d.	6d.	Gas Light & Coke Ord. ...	20/9—21/9a
2,600,000	"	35/-	35/-	Do. 3½ p.c. max. ...	77—82
4,477,106	"	2	2	Do. 4 p.c. Con. Pref. ...	101—104
2,993,000	July 16	1¾	1¾	Do. 3½ p.c. Red. Pref. ...	100—103
8,602,497	May 28	1¾	1¾	Do. 3 p.c. Con. Deb. ...	89—92
3,642,770	"	2½	2½	Do. 5 p.c. Red. Deb. ...	106—109
3,500,000	"	2½	2½	Do. 4½ p.c. Red. Deb. ...	107—110
700,000	Sept. 17	1¾	1¾	Do. 3½ Red. Deb. ...	98—100
5,600,000	May 28	—	†£10	Imperial Continental Cap. ...	112—115
43,820	July 30	1½	1½	Do. 3½ p.c. Red. Deb. ...	97—100
2,167,410	Aug. 7	60/-	55/-	Liverpool Ord.	123—128
231,978	" 13	50/-	50/-	M.S. Utility 'C' Cons.	108—113
918,657	"	2	2	4 p.c. Cons. Pref.	100—105
675,000	April 30	‡40/-	‡40/-	Montevideo, Ltd.	118—123
300,000	" 23	£6	£4	Oriental, Ltd.	195—205
368,537	June 11	50/-	57/6	Plymouth & Stonehouse 5 p.c.	110—115
621,667	Aug. 13	72/6	72/6	Portsmouth & Gosport Cons.	155—160
2,381,363	July 9	†9¾d.	†9¾d.	Primitiva Holdings, Ltd. Ord.	14/-—15/-
233,900	June 11	3	3	Do. 6½ p.c. Red. Cum. Pref.	102—107
648,999	Sept. 10	6¾	6¾	Severn Val. Gas Cor. Ld. Ord.	23/-—24/-
597,972	"	2½	2½	Do. 4½ p.c. Cum. Pref. ...	21/6—22/6
2,528,714	Aug. 27	6d.	3¾d.	South East'n Gas Cn. Ld. Ord.	20/-—21/-
1,000,000	"	2½	2½	Do. 4½ p.c. Red. Cum. Pref.	21/3—22/3
1,068,869	"	2	2	Do 4 p.c. Irred. Cum. Pref.	19/9—20/9
6,709,895	Aug. 20	†40/-	30/-	South Met. Ord.	86—89
1,135,812	"	3	3	Do. 6 p.c. Irrad. Pref. ...	126—131
850,000	"	2	2	Do. 4 p.c. Irrad. Pref. ...	100—103
1,895,445	July 2	1½	1½	Do. 3 p.c. Perp. Deb. ...	87—90
1,000,000	" 16	2½	2½	Do. 5 p.c. Red. Deb. ...	102—107
1,543,795	July 30	50/-	50/-	South Suburban Ord. 5 p.c ...	113—118
512,825	"	2½	2½	Do. 5 p.c. Perp. Pref. ...	111—116
500,000	"	2	2	Do. 4 p.c. Perp. Pref. ...	99—104
250,000	"	1½	1½	Do. 3½ p.c. Red. Pref. ...	93—98
888,587	June 11	2½	2½	Do. 5 p.c. Perp. Deb. ...	122—127
750,541	Aug. 13	50/-	50/-	Southampton Ord.	107—111
350,000	" 13	2½	2½	Swansea 5½ p.c. Red. Pref.	105—110
1,076,490	" 7	50/-	50/-	Tottenham & District Ord. ...	113—118
338,555	"	2½	2½	Do. 5 p.c. Pref.	110—115
453,380	June 11	2	2	Do. 4 p.c. Perp. Deb. ...	100—105
1,247,505	"	7½d.	6d.	U. Kingdom Gas Cor. Ord. ...	20/9—21/9
1,085,952	May 14	5¾d.	5¾d.	Do. 4½ p.c. 1st Cum. Pref.	22/6—23/6
772,709	"	4¾d.	4¾d.	Do. 4 p.c. 1st Red. Cum.Pref.	19/9—20/9
745,263	June 18	5¾d.	5¾d.	Do. 4½ p.c. 2nd Non.Cum. Pf.	20/6—21/6
1,200,000	Sept. 17	1¾	1¾	Do. 3½ p.c. Red. Deb. ...	97—102
380,606	Aug. 13	66/3	66/3	Uxbridge, &c., 5 p.c.	124—129
1,371,138	July 30	50/-	50/-	Wandsworth Consolidated ...	113—118
2,525,768	"	2	2	Do. 4 p.c. Pref.	101—104
1,343,964	June 18	2½	2½	Do. 5 p.c. Deb.	122—127
383,745	"	2	2	Do. 4 p.c. Deb.	100—105
558,342	Aug. 13	50/-	50/-	Watford & St. Albans Ord. ...	114—119

SUPPLEMENTARY LIST

Issue. £	When ex-Dividend.	Dividends Interest. Amnt. or Rate% Prev. Hf. Yr. Actual.	Last Hf. Yr. Actual.	NAME.	Quotations Sept. 27
351,685	June 18	2½	2½	Brighton, &c., 5 p.c. Perp. Deb.	122—127
415,250	"	2	2	Bristol Gas Co., 4 p.c. New Deb.	101—104
140,205	July 30	70/-	70/-	Cambridge, &c., 7 p.c. Cons. 'B'	141—146
295,932	Aug. 20	50/-	50/-	Cheltenham, 5 p.c. Cons.Ord....	107—112
42,500	June 18	2	2	Do. 4 p.c. Perp. Deb....	100—105
150,000	Aug. 20	2	2	Croydon Gas, 4 p.c. Pref. (Irr.)	98—103
130,000	June 25	2	2	Do. 4 p.c. Deb. ...	100—105
53,220	Aug. 27	3	3	East Surrey, 6 p.c. Cum. Pref....	127—132
...	Aug. 19 '40	40/-	40/-	Eastbourne, 'B' 3½ p.c.... ...	97—102
117,425	March 1	—	£6	East Wight Cons. 5 p.c. ...	100—105
25,000	June 18	2½	2½	Guildford 4½ p.c. Red. Deb. ...	103—105
156,600	Aug. 13	50/-	50/-	Hampton C't, 5 p.c. Cons. Ord.	114—119
18,000	May 28	—	£7	Malta & Med'n., 7 p.c. 1st Pref.	85—95
10,845	"	—	£7½	Do. 7½ p.c. 2nd Pref.	85—95
50,000	Aug. 13	52/3	52/3	Mid. South. Util., 'A' Cons. 5 p.c.	107—112
70,380	June 25	2½	2½	Newport (Mon.), 5 p.c. Deb...	120—125
65,000	Aug. 13	2½	2½	North Middlesex, 5 p.c. Pref....	110—115
70,000	Sept. 10	2½	2½	Plymouth & Stone., 5 p.c. Deb.	120—125
76,501	June 18	2	2	Reading, 4 p.c. Perp. Deb. ...	98—103
74,777	April 3	2	2	Romford, 4 p.c. Debs. (Reg.) ...	98—103
21,000	June 11	2½	2½	Slough, 5 p.c. Perp. Deb. ...	122—127
211,740	" 18	2½	2½	Southampton, 5 p.c. Red. Deb.	105—110
363,575	July 2	2½	2½	Tottenham, 5 p.c. Reg. Red. Mt.	99—102
202,019	Sept. 24	75/-	75/-	Tunbridge Wells, 4 p.c. Scale ...	140—145
135,257	June 11	2½	2½	Uxbridge &c., 5 p.c. Perp. Deb.	122—127

PROVINCIAL EXCHANGES

					Quotations Sept. 21
804,948	Aug. 7	2½	2½	Bath Cons.	113—115
122,577	Aug. 20	4½	3	Blyth 5 p.c Ord.	124—126
1,667,250	July 16	2½	2½	Bristol, 5 p.c. max.	116—118
120,420	June 18	2	2	Do. 1st 4 p.c. Deb.	102—104
415,250	"	2	2	Do. 2nd 4 p.c. Deb. ...	101½—103½
328,790	"	2½	2½	Do. 5 p.c. Deb.	122—124
157,150	Aug. 7	3½	2½	Chester 5 p.c. Ord.	115—117
52,500	June 18	2	2	Do, 4 p.c. Cum. Pref. ...	99—101
40,000	"	2	2	Do. 4 p.c. Non. Cum. Pref.	99—101
36,430	"	1½	1½	Do. 3½ p.c. Deb.	88—92
41,890	"	2	2	Do. 4 p.c. Red. Deb. ...	103—102
542,270	Feb. 12	3	4½	Derby Cons.	135—140
55,000	June 18	2	2	Do. 4 p.c. Deb.	97—102
40,000	Aug. 7	5½	5½	Exeter 10 p.c.	185—195
10,000	" 13	5	5	Great Grimsby 'A' Ord. ...	175—185
6,500	"	5	5	Do. 'B' Ord. ...	175—185
79,000	"	5	5	Do. 'C' Ord. ...	165—175
732,000	Aug. 27	2	2	Hartlepool G. & W. Cn. & New	91—93
490,681	June 18	1½	1½	Liverpool 3½ p.c. Red. Deb. Stk.	95—100
245,500	"	2	2	Do. 4 p.c. Red. Deb. Stk.	102—103
306,083	July 2	2	2	Do. 4 p.c. Deb.	103—105
680,000	June 4	2½	2½	Do. 5 p.c. Red. Stk. ...	104—109
20,000	"	2½	2½	Long Eaton 5 p.c. Pref.	9—11
80,000	"	2½	2½	Do. 5 p.c. Deb.	117—122
2,430,267	Aug. 7	2½	2½	Newcastle and Gateshead Con.	24/6—25/3a
682,856	"	2	2	Do. 4 p.c. Pref.	102—104
776,706	June 25	1½	1½	Do. 3½ p.c. Deb.	100½—102½
250,000	"	1½	1½	Do. 3½ p.c. Red. Deb. ...	100—102
73,186	April 23	2	2	Do. 4 p.c. Red. Deb. ...	102—104
106,280	Aug. 13	5	5	Preston 'A' 10 p.c.	185—190
188,219	"	3½	3½	Do. 'B' 7 p.c.	140—145
1,806,339	Aug. 27	3½	3½	Sheffield Cons.	147—150
95,000	July 30	2	2	Do. 4 p.c. Deb.	98—102
332,351	Aug. 13	3	3	Sunderland 6 p.c. max. ...	123½—125½
192,150	" 13	2½	2½	Weston-super-Mare Cons. ...	112½—114½
64,338	July 2	2	2	Do. 4 p.c. Deb.	99—101
33,340	"	3½	3½	Do. 7½ p.c. Deb.	145—150

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(GAS DEPARTMENT)

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APPLICATIONS are invited for the Position of Second (Temporary) TECHNICAL ASSISTANT.
Candidates must be thoroughly conversant with the control and working of Glover-West Vertical Retorts, and be capable of carrying out all gas-works routine analyses, including benzole and concentrated liquor tests. Applicants should also state their position with regard to National and Military Service.
The salary payable will be £260 per annum, plus War Bonus of £60.
Applications, stating Age, Qualifications, and Experience, together with *copies* of two Testimonials, should be in the hands of the subscriber not later than Saturday, October 13, 1945.
Gas Offices, Merry Street, Motherwell.
WILLIAM KIRK, M.Inst.Gas E., Engineer and Manager.
September 24, 1945.

BOROUGH OF ILKESTON

APPLICATIONS are invited for the permanent position of TECHNICAL ASSISTANT to the above Undertaking at a commencing Salary of £280, rising in increments of £15 to £370 per annum, in accordance with Grade "F" of the Council's Grading Scheme, plus cost of living bonus.
Candidates should have experience in the operation of Gas-Works plant, particularly W-D. Vertical Retorts, and should also have experience in Practical Gas Works Chemistry.
The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a Medical Examination.
Applications, marked "Technical Assistant," stating position under National Service Acts and Essential Works (General Provisions) Order, and giving full particulars of Age, Training, Experience, and Qualifications, with *copies* of three recent Testimonials, to be received by the undersigned not later than Monday, October 15, 1945.
Canvassing, directly or indirectly, will disqualify.
Town Hall, Ilkeston.
E. I. E. WILLIAMS, Town Clerk.
October 1, 1945.

WANTED for 150 million works in the Midlands, WORKS MANAGER AND TECHNICAL ASSISTANT.
Applicants must be efficient carbonizers, with experience on machine-charged horizontal plant, and be able satisfactorily to organize and control retort house and works labour.
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Applications, giving particulars of training and experience, and enclosing *copies* of Testimonials, to be received by Oct. 10, 1945, addressed to No. 9479, 11, Bolt Court, Fleet Street, E.C. 4.

REQUIRED.—Competent ESTIMATOR, aged 30 to 35, for Firm of Gas Plant Contracting Engineers in Victoria district, London. Apply, giving Age, full details, Experience, Salary earned and expected. Address No. 9480, "GAS JOURNAL," 11, Bolt Court, Fleet Street, E.C. 4.

GENERAL FOREMAN

APPLICATIONS are invited for the Position of GENERAL FOREMAN at a works in the Home Counties. Applicants should have had experience of horizontal and vertical retorts and water gas manufacture. Commencing wage £7 per week.
Apply, stating Age, Experience and position in relation to the Essential Works Order, and include *copies* of recent Testimonials, to No. 9481, "GAS JOURNAL" 11, Bolt Court, Fleet Street, E.C. 4.

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Applications should be made in writing, addressed to the Personnel Superintendent, Radiant House, Bold Street, Liverpool, 1, stating in confidence full details of Age, Education, Training, and previous employers. *Copy*, not original references should be enclosed.
Sept. 12, 1945.

Corrected Advertisement

PONTYPRIDD URBAN DISTRICT COUNCIL

(GAS DEPARTMENT)

APPLICATIONS are invited for the Position of DISTRICT FOREMAN at a Salary of £225 per annum, rising by annual increments of £10 to a maximum of £255 per annum, plus War Bonus, at present £59 16s. per annum.
Applicants must be fully conversant and have had sound practical knowledge of all modern lighting, cooking, heating, water-heating and industrial appliances, meter repairs, main and service laying; able to deal with estimates, complaints and general supervision of fitting work, with ability to control labour, and should not be more than 45 years of age.
Possession of Certificates in Gasfitting and supply will be an advantage.
The appointment will be subject to the Local Government Superannuation Act, 1937, and the successful applicant will be required to pass a medical examination.
Applications endorsed "District Foreman," stating Age, Qualifications, Training and Experience, accompanied by three Testimonials, must be received by the undersigned not later than first post, Monday, October 15, 1945.
Municipal Buildings, Pontypridd.
H. LEONARD PORCHER, Clerk of the Pontypridd Urban District Council.
September 19, 1945.

NORTHAMPTON GASLIGHT COMPANY

APPLICATIONS are invited for the Position of WORKS SUPERINTENDENT at the Newport Pagnell Works, annual make 75 million cubic feet.
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Tender forms, giving full particulars of the plant available for disposal, will be issued from time to time as Hydrogen Plants are scheduled for dismantling. Those desiring to receive Tender forms should apply by letter briefly stating their requirements to the Under Secretary of State, Air Ministry, (C.44(a)), Kingsway, London, W.C. 2.

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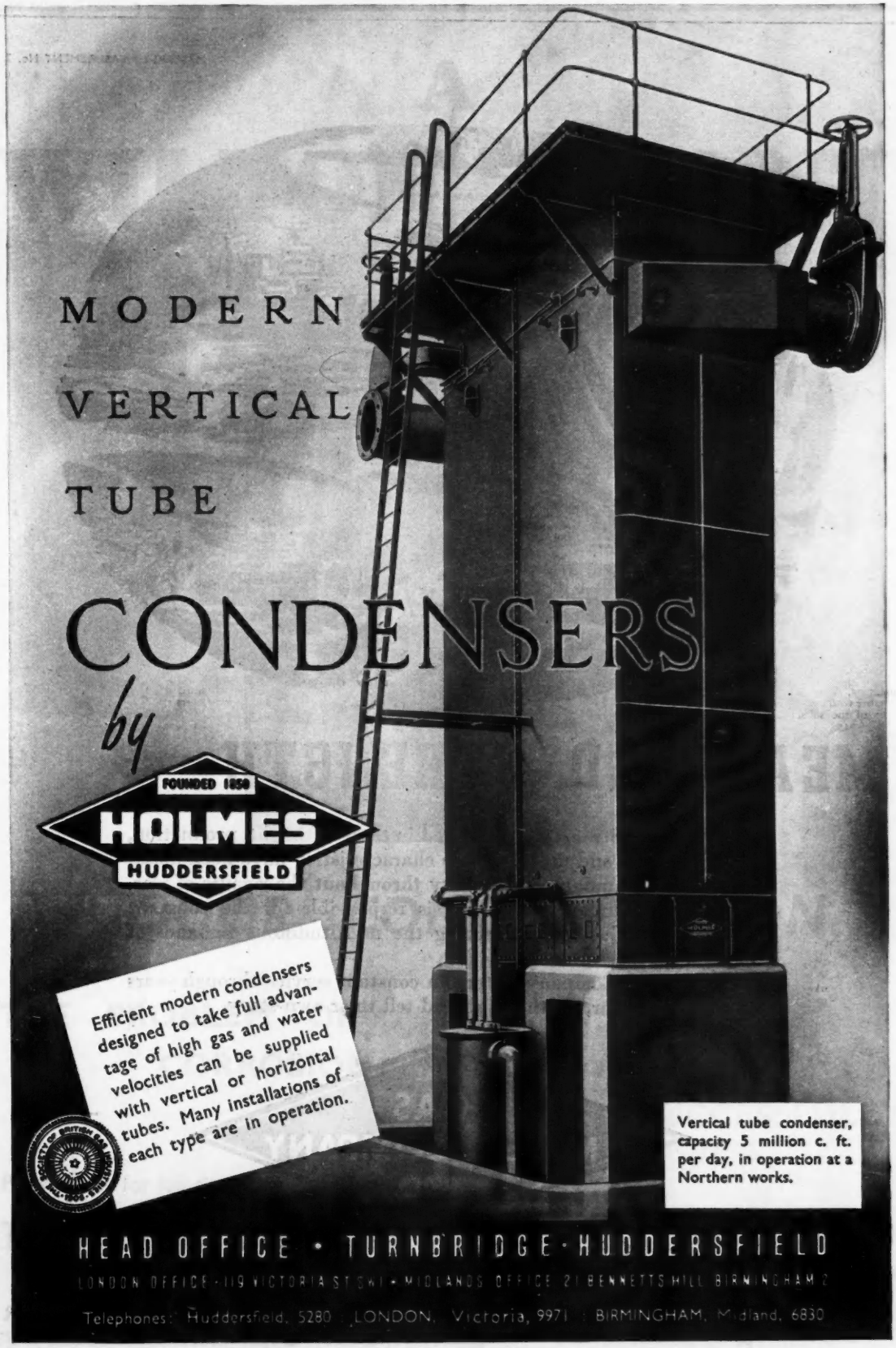
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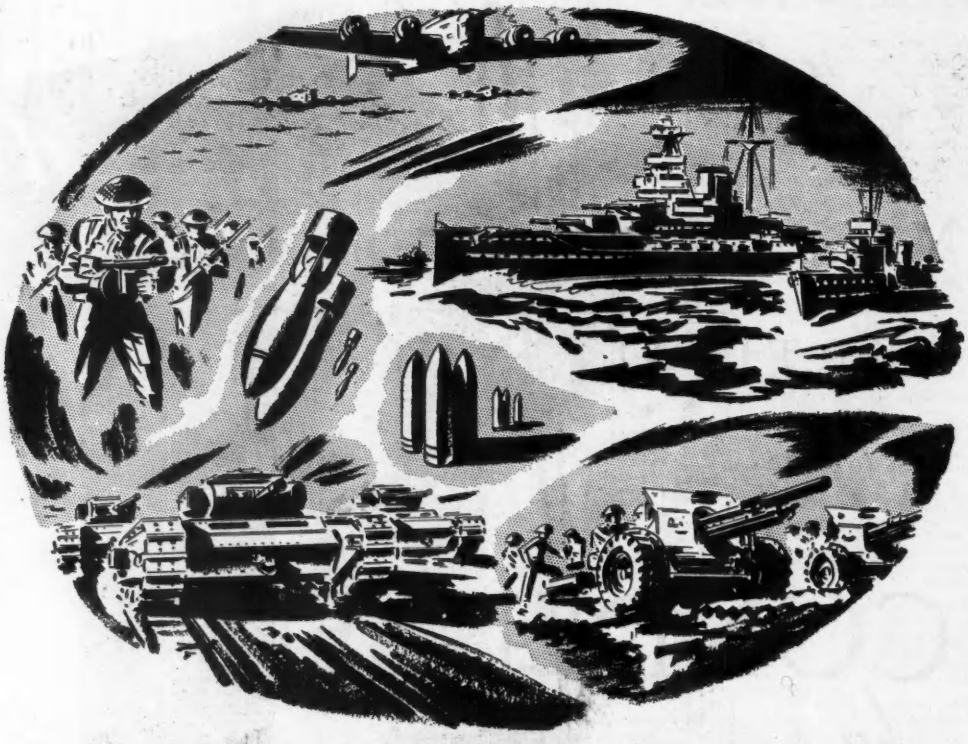

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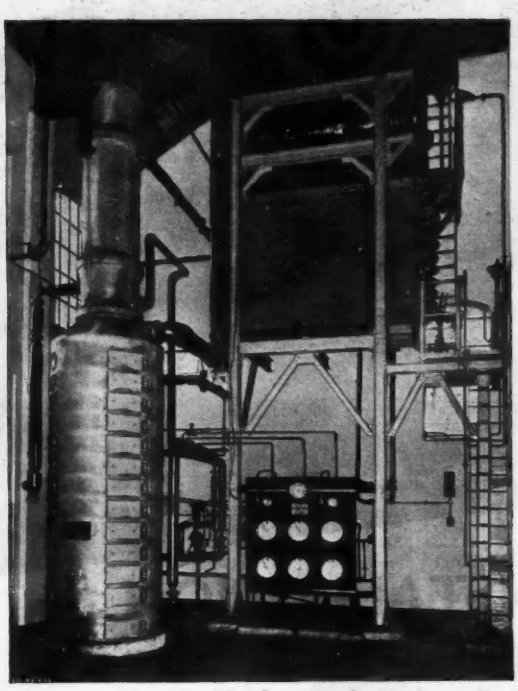

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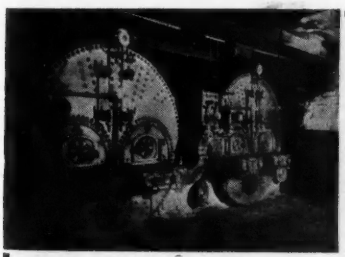

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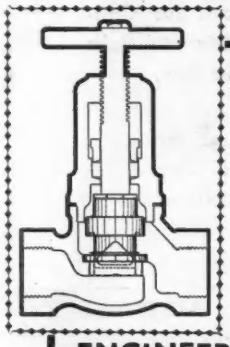

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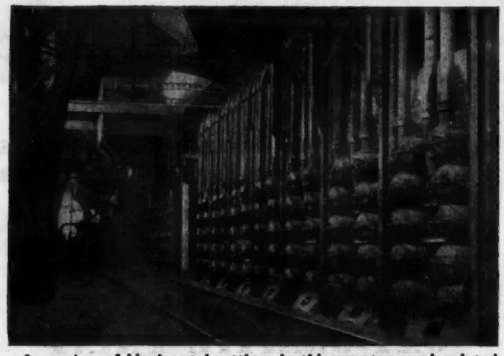

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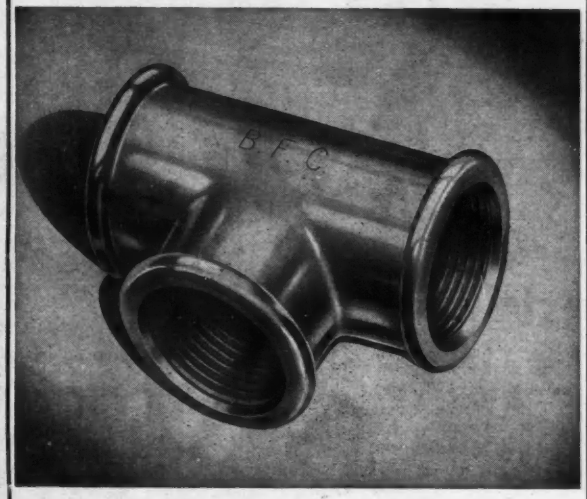

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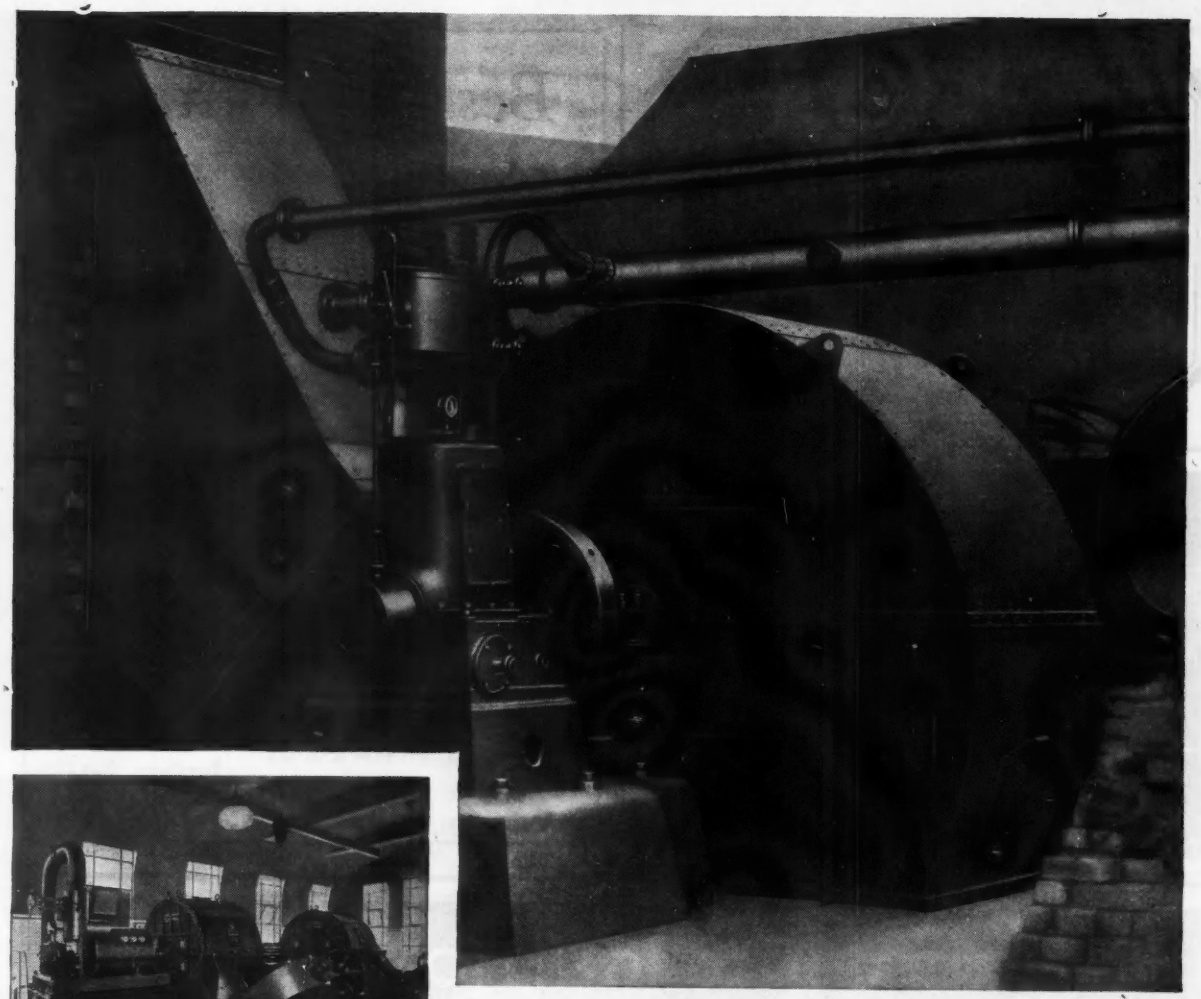
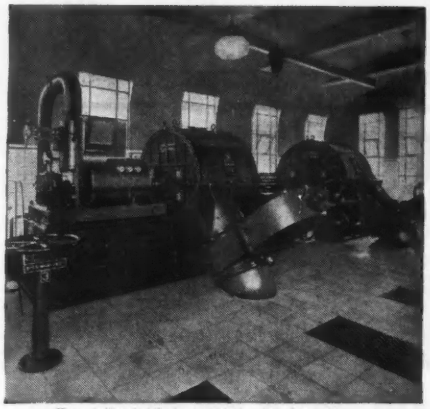


"Keith" Centrifugal Fan providing induced draught to boiler fires.



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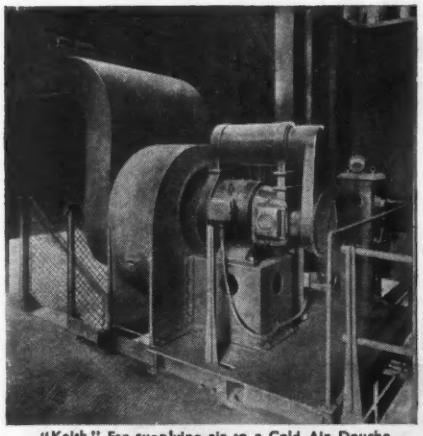
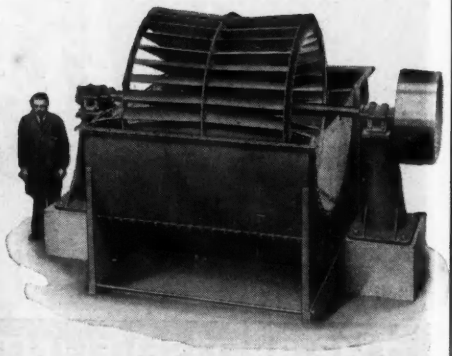


"Keith" Fan supplying air to a Cold Air Douche Plant at a Gas Works.

KEITH BLACKMAN FANS



Large belt-driven double-inlet "Keith" Fan with top casing removed.

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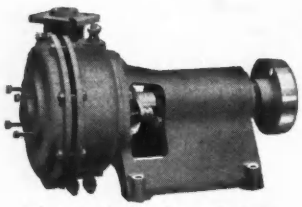

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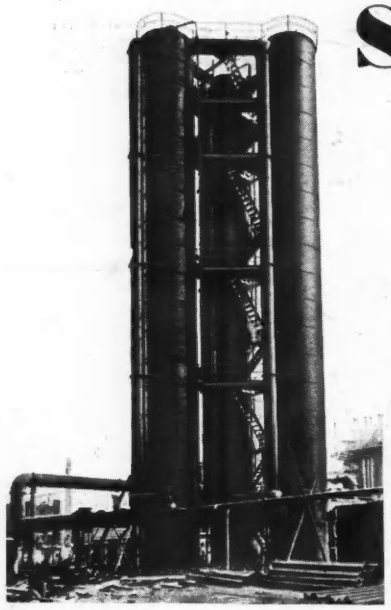

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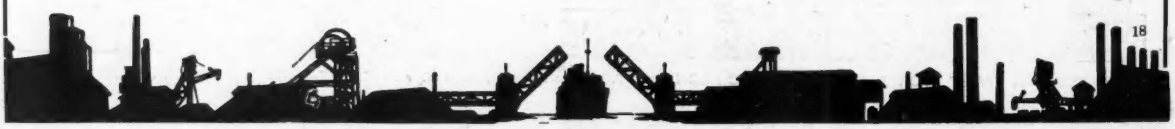

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